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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 January 10, 1941 No. 1

Personnel (Dec. 10 - Jan. 10) and Field Station (Dec. 1 - 31)

PERSONNEL ITEMS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

At the meetings of the American Association for the Advancement of Science and affiliated societies, held in Philadelphia, Pa., December 27, 1940, to January 2, 1941, the following papers were contributed by members of the staff of the Division:

Bacterial Wilt of Dent Corn. Charlotte Elliott.

An Evaluation of Induced Polyploidy as a Method of Breeding Crop Plants. L. F. Randolph.

Nullisomics in Triticum vulgare. E. R. Sears.

The Location of Dominant Favorable Genes in Maize by Means of an Inversion. G. F. Sprague.

The Place and Methods of Breeding for Insect Resistance in Cultivated Plants. Ralph O. Snelling.

Studies on the Occurrence, Identification and Species Integrity of the Barley Loose Smuts Ustilago nuda, U. nigra, and U. mediams. V. F. Tapke.

The following members of the Division staff attended the meetings: Dr. Charlotte Elliott, Dr. H. B. Humphrey, Dr. M. T. Jenkins, Mr. R. W. Leukel, Dr. A. E. Longley, Mr. H. H. McKinney, Dr. J. H. Martin, Dr. L. F. Randolph, Dr. H. A. Rodenhiser, Dr. E. R. Sears, Dr. Luther Smith, Mr. R. O. Snelling, and Dr. V. F. Tapke.

Mr. Dean C. Anderson arrived in Washington January 2 to confer with agricultural workers regarding corn research, consult the library, and write reports. He will be in Washington about a month.

Dr. Luther Smith was in Washington January 2 and 3 to confer with members of the Division staff.

RECENT PUBLICATIONS

[B. B. Bayles, compiler] Foreign Wheat Introductions, III. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 8 pp. January 2, 1941. [Mimeographed.]

Merle T. Jenkins. Report of the Second Southern Corn Improvement Conference Held at Knoxville, Tennessee, August 26 and 27, 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 49 pp. December 20, 1940. [Mimeographed.]

C. O. Johnston. Fall Infections of Cereal Rusts in Kansas. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 24(22): 462-463. December 1, 1940. [Mimeographed.]

T. C. Ryker and N. E. Jodon. Inheritance of Resistance to Cercospora oryzae in Rice. Phytopath. 30(12): 1041-1047, illus. December 1940. (Joint contribution from Louisiana Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

AUTOMOBILE HIRE

It has not been possible to secure reimbursement for hire of an automobile from another government employee or for share in travel expense in the automobile of another government employee. This notice is given so you may be on your guard not to incur this expense for which you cannot be reimbursed. See Paragraph 3441 of the REGULATIONS OF THE DEPARTMENT.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Jan. 7)

The total precipitation of 8.18 inches in December 1940 was 4.38 inches more than in 1939, 2.41 inches above the 30-year average, but lower than in 1911, 1912, 1920, 1922, 1923, and 1931.

The total precipitation for 1940 was 105.96 inches. The previous annual record was 71.52 inches in 1923.

The maximum temperature for the month was 79°, the minimum 37°, and the average mean 57°.

Threshing operations, on the Station, were completed December 21. Rice yields were not recorded for all of the experiments because of damage caused by the August flood and these recorded are one-fourth to one-half less than for the same experiments in 1939 or for varieties that occupied the same fields in 1938.

Many commercial fields of rice remained unthreshed on December 31, owing to frequent rains and "back" water in areas adjacent to streams.

Rice prices have greatly increased since harvest began last fall and are now sufficiently high to compensate in part for losses due to low yields resulting from adverse weather conditions.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice and Oat Production and Improvement, C. R. Adair) (Dec. 20)

The yields of most varieties of rice on station plots and farm fields were low in 1940. The low yields were probably due to a combination of unfavorable climatic conditions at critical periods during the growing season.

At the time of and immediately after seeding, temperatures were low and there were numerous showers. This caused the rice to emerge slowly and unevenly and the grass to grow fast. Owing to poor stands many fields were plowed and reseeded. But due to the cool weather the plants did not grow as well as they should during the summer. The mean daily temperature during June, July, and August was about 2° below normal. There were two periods during September, one in the middle and the other during the latter part of the month, when the minimum temperatures were 43° and the temperatures in the field were probably several degrees lower. The temperatures apparently were low enough in late September to cause considerable sterility in the late varieties. There appeared to be considerable variation between varieties in their sensitivity to low temperature at flowering time.

The weather has been very unfavorable for threshing. Rains have occurred frequently during the entire fall so that threshing has been delayed two or three weeks. A few fields in this territory still remain to be threshed, but threshing on the Station has been completed.

The days from seeding to maturity, average grain yield, and estimated milling quality for 19 selections and varieties grown in quadruplicated plots are given in the following table.

The six hybrid selections and the Louisiana Blue Rose selection listed in the table, were grown in field plots for the first time this year. Of the hybrids, the Caloro X Blue Rose (AH-29-139) selection is probably the most promising. In grain type it is similar to Supreme Blue Rose. The Improved Blue Rose X Fortuna (AH-29-94) selection yielded very well but the grain is less desirable than that of the Caloro X Blue Rose selection. Small increase blocks of both of these selections also were grown. They will be tested on a larger scale in 1941. The Louisiana Blue Rose selection yielded very well but the grain is less desirable than that of Supreme Blue Rose. The yields of the other four hybrids were rather disappointing.

Arkansas Fortuna, with an average yield of 56.3 bushels per acre, was the highest yielding variety. Several hundred acres of this variety were grown in 1940, and present indications are that the acreage sown to Arkansas Fortuna will be increased appreciably in 1941. Zenith, another selection made at this Station, ranked fourth in yield, with an average of 52.2 bushels per acre. The commercial acreage of Zenith will be larger in 1941 than in 1940.

Acadia continued to yield very well and a small increase block was also grown in 1940. It will be tried on a field scale in 1941.

Increase blocks of Zenith, Arkansas Fortuna, and Nira were also grown in 1940, and considerable pure seed of these varieties is available for distribution in 1941.

Grain type, variety, or parents	C. I. or other no.	Days from seeding to maturity	Average yield of grain(Bu. per acre)	Estimated yield of head rice (Lbs. per bbl.)
Short-grain				
Caloro	1561-1	134	45.6	95
Acadia	1988	144	51.8	98
Asahi	-----	150	44.7	77
Medium-grain				
Early Prolific	5883	128	49.6	90
Zenith	7787	126	52.2	99
Shoemed	3625	138	49.2	79
Edith X Caloro	AH-29-3-1	144	42.7	98
Caloro X Blue Rose	AH-29-139	143	50.0	98
Kameji X Blue Rose	AH-29-153	144	36.4	95
Supreme Blue Rose	5793	154	38.9	92
Old Style Blue Rose	-----	153	36.7	81
La. Blue Rose	La. 2854-3	153	55.3	91
Long-grain				
Lady Wright	5451	127	36.1	91
Edith	2127	127	37.6	84
Imp. Blue Rose X Fortuna	AH-29-94	144	55.5	85
Arkansas Fortuna	-----	148	56.3	60
Nira	2702	160	40.1	38
Rexoro X Delitus	B321A2-8-2-1	148	35.7	71
Rexoro X C. I. 5094	B324A1-8-2-1	188 1/	11.4	4

1/ Not fully matured.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Grain Sorghum and Broomcorn, J. B. Sieglinger) (Dec. 16)

Grain yields for the sorghum date-varietal experiments at Woodward, Okla., in 1940 were:

Variety	C. I. No.	Yield in bushels[1/] (56 lbs.) per acre		
		June 7 seeding	June 21 seeding	Av. of 2 dates
Dwarf milo	332	7.5	3.7	5.6
Finney milo	1089	7.2	1.5	4.3
Beaver milo	871	3.9	0.5	2.2
Milo x hegari (Wd. 11-2)	---	4.4	0.8	2.6
Feterita	182	5.2	3.7	4.4
Spur feterita	623	1.2	0.9	1.1
Early hegari (S.A. No. 281)	---	2.2	2.0	2.1
Hegari	750	0.5	0.4	0.5
Chiltex	874	3.2	6.3	4.7
Club kafir	901	1.2	2.2	1.7
Sedan Red kafir	1103	1.6	5.7	3.6
Sunrise kafir	472	2.2	4.2	3.2
Atlas	899	0.6	1.1	0.8
Reed kafir	628	1.7	2.8	2.3
Hydro kafir	1023	0.8	0.8	0.8
Sharon kafir	813	1.7	1.1	1.4
Standard kafir	71	0.8	1.2	1.0
Bishop kafir	814	0.7	1.8	1.3
White darso (Wd. 52-29)	---	1.7	2.5	2.1
Yellow darso (Wd. 32-12)	---	1.5	2.3	1.9
Darso	615	2.5	1.7	2.1
Average of 21 varieties		2.5	2.3	2.4

1/ Each yield figure is the average of 2 guarded 1/47th-acre plots.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Dec. 28)

An unusually mild fall in Kansas was broken by a severe cold wave November 11 to 15. Up to that time there had been no hard killing frost in many parts of the State and many trees still were in full leaf. The temperature dropped suddenly to a point only a few degrees above zero, resulting in severe injury to many fruit and shade trees particularly to cherries, peaches, and Chinese elms. Some fruit trees were killed to the ground. Even now many fruit trees still are fully clothed in dead leaves.

The sudden severe freeze apparently did not greatly damage most of the winter wheat in the State due to some snow that accompanied the storm. Wheat had made a heavy top growth in many parts of the State and much of that was killed back nearly to the crowns. Although the plants remain undamaged, the amount of winter pasture for thousands of sheep that had been shipped into the State, and for farmers' cattle, was drastically reduced.

Snow and rain in November brought the precipitation for the month about an inch above normal. Continued precipitation, including a heavy snow on December 15, has resulted in above average moisture for that month also. Fairly abundant rains since the middle of August have greatly improved the subsoil moisture situation in the western half of the State. As a consequence, that part of the State now has the best prospects for a wheat crop it has had in years.

Considerable winter killing of hybrid wheats in the rust nursery resulted from the severe freeze in November. Varieties such as Turkey, Kharkof, and Kawvale were not damaged but many soft wheats and nonhardy hybrids were killed or severely injured. Interesting differential killing already has been noted in many crosses.

Rust work in the greenhouse is well advanced with the testing of varieties and hybrids of both wheat and oats and physiologic race determinations in the leaf rust of wheat now demanding most attention.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Dec. 31)

At present there is much interest in the condition of the winter wheat crop in Nebraska, and the opinions of various observers do not agree. As previously reported, the crop made a fairly good fall growth except where seedbeds were too dry. During October the temperatures were unusually high. The first ten days of November were rather warm and then came the severe storm of November 10 and 11, followed by zero weather for several days. There was some snow on the ground at that time but it drifted badly, leaving many bare spots in the fields. This snow melted and there was a period of alternate freezing and thawing which caused some heaving. A heavy snow about December 15 again covered the fields and this has now melted, making possible further study of the plants, which seem to have made some growth under the snow, since the soil was not frozen.

At Lincoln the plots and nursery rows seeded on regular dates, especially those of adapted varieties, seem to be in good shape. The tender varieties are showing considerable injury and in the nursery some strains appear to be dead. All late or thin seedings are in very poor condition. This includes the second date of the Crops-Weather study (seeded October 11), the rust nursery, bunt nursery, and many of the head rows. Many of the bulk hybrid rows, especially those having a spring wheat as one parent, are severely injured if not completely killed.

The controlled freezing work has been seriously disrupted for the year, since the sudden drop in temperature killed much of the material. In some cases the boxes are being brought into the greenhouse with no exposure to controlled low temperatures and some notes are being obtained although the survival is very spotted. None of the breeding material is being put through the freezer since the exposure has already been severe enough if not too heavy. Most of the winter barley has been frozen before the storm, so good survival data were obtained. The hardy varieties of winter rye in the plots still appear to be normal, although the more tender ones are showing injury.

Reports from North Platte indicate that there the wheat has suffered, again the tender varieties and late seedings being the hardest hit. At Alliance, the wheat does not seem to have been injured a great deal.

Limited inspection of fields and reports coming in from farmers indicate a very spotted condition. In general, the crop in the west end of the State seems to be about normal. In central and southeastern counties the damage seems to have been heavier. At present it would appear that in fields seeded late, or where growth was slow, killing has been the worst. On a recent 100-mile drive south and east of Lincoln, some fields were observed with survival as low as 20 percent, while others were estimated at 100 percent. For the entire trip a general estimate of 50 percent survival was made. Plants dug up and brought into the greenhouse tended to substantiate the estimates of live and dead plants. Undoubtedly the cooperative nurseries, some 26 in number, will give valuable data this year. One nursery north and west of Lincoln in Polk County is reported as all dead.

It is apparent that farmers are aware of the situation since inquiries regarding spring wheat are being received. On the more optimistic side of the picture the latest crop report indicated a condition of 81 percent for the Nebraska winter wheat crop, and this figure was based on reports received from farmers after the storm of middle November. There may be some question as to whether the real condition was realized at that time.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Jan. 6)

After nearly a month of above zero weather, December ended with minimum temperatures near zero. A light snow cover of about 2 inches gave a little protection to winter grain that looked to be in good condition when seen with bare ground early in the month. The precipitation for December was 0.32 inch. A little more snow has fallen since December 31.

The total precipitation for 1940 was 17.12 inches, or 1.92 inches above normal. The precipitation was considerably below normal in May, June, and August but above normal in July, September, October, and April. The April rainfall was the highest of any month of the year, and the highest on record at Dickinson, being 5.02 inches, or 3.84 inches above normal.

Soil moisture conditions should be unusually good in the spring due to the liberal rains in September and October.

AGRICULTURAL EXPERIMENT STATION, MANDAN (Cereal rootrots, Roderick Sprague) (Dec. 27)

The cereal and grass rootrot project for this area was transferred from Fargo to the Northern Great Plains Field Station on October 17 because of available greenhouse facilities at Mandan. Laboratory and office space were set up in three rooms in the brick bunkhouse at the Station with outlets for light, gas, and water conveniently arranged.

The weather, except for two brief sub-zero spells, has been relatively mild fluctuating from about 10° to 25° minimum and from 20° to 50° maximum. Travel has been somewhat hazardous because of daytime thawing and subsequent nightly freezing.

Pathogenicity trials are in progress in the greenhouse with Helminthosporium sativum, Fusarium equiseti, F. oxysporum, F. culmorum (from Oregon), Gloeosporium, Phoma and Pythium.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Jan. 2)

The winter to date has been mild and wet. A few inches of snow fell in November, but melted within a few days. The leaves of winter oats and barley were nipped by frost, but no serious damage occurred. Early-sown wheat made so much growth that several farmers resorted to pasturing to allay damage from lodging next spring.

Total precipitation for the calendar year was 20.02 inches, which is the highest recorded at the Station since its establishment in 1928. The average annual precipitation for the past 12 years was 14.11 inches. With any kind of favorable spring and early summer weather, we should have the best crop yields since 1928.

SHERMAN BRANCH EXPERIMENT STATION, MORO (Cereal Agronomy, M. M. Oveson) [Dec. 23]

Rex M1 produced the highest yield of all the wheats grown in the varietal trial at the Sherman Branch Experiment Station in 1940. It yielded 22.3 bushels per acre. Federation was second with a yield of 21.4 bushels per acre while Kanred-Hard Federation, a wheat which has been grown for only two years, was third with a yield of 20.3 bushels per acre. Rio, the highest yielding wheat this year of the standard Turkey varieties, produced 20.0 bushels per acre.

Winter wheats were generally better than the spring wheats of which the highest yield was obtained from White Federation with a yield of 18.8 bushels per acre. Federation-Bunyip, which was the highest yielding spring wheat in 1939, was second among the spring wheats this year with a yield of 17.3 bushels. Hard Federation 31, a popular wheat among the farmers of Sherman County this year, yielded 16.9 bushels per acre. Pacific Bluestem yielded 13.4, Marquis, 13.3, and Baart, 13.0 bushels per acre.

The yields of the last mentioned wheats give an indication of the yields of the older and more widely known wheats which were grown in Sherman County and Eastern Oregon before the Federation wheats has been heard of. Today wheats distributed from the Moro Station have replaced these varieties as well as the old Big Club, Sonora, Jenkin Club, Red Russian, and Fortyfold which were grown when wheat production first became a major crop in Eastern Oregon.

The yield of the winter and spring wheat varieties grown at the Station in 1940 are listed in the order of their yield.

Variety	C. I. No.	Average acre yield
Spring wheat		
White Federation	4981	18.8
Federation-Bunyip	11674	17.3
Hard Federation 31	8255	16.9
Chas.	6221	16.2
Baart-Hard Federation	11615	16.2
Idaed	11706	15.4
Federation	4734	15.4
Pacific Bluestem	4067	13.4
Marquis	4158	13.3
Baart	1697	13.0
Average		15.6
Winter wheat		
Rex M1	11689	22.3
Federation	4734	21.4
Kanred-Hard Federation	10092	20.4
Hymar	11605	20.3
Athena	11693	20.3
Rio	10061	20.0
Hybrid 128	4512	20.0
Elgin	11755	19.0
Turkey selection	11424	18.5
Blackhull	6251	18.3
Triplet	5408	18.3
Golden	10063	18.1
Cheyenne	8885	18.0
Local Turkey	4429	17.1
Kharkof	1442	16.2
Oro	8220	15.2
Relief	10082	14.1
Ridit	6703	13.7
Average		18.4

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 February 10, 1941 No. 2

Personnel (Jan. 11 - Feb. 10) and Field Station (Jan. 1 - 31)

PERSONNEL ITEMS

Dr. A. M. Brunson arrived in Washington on January 22 to confer with Department officials regarding corn research, to consult the Library, and to write reports.

Mr. J. Allen Clark and Dr. S. C. Salmon returned on February 10 from Minneapolis, Minn., where they conferred with cooperators, including experiment station workers and representatives of the milling and grain industry, concerning the spring wheat improvement program.

Dr. James G. Dickson came to Washington on January 27 to confer with Department officials regarding cereal research.

Dr. M. T. Jenkins talked on hybrid corn at a meeting of farmers held in connection with State Feed Show at Abingdon, Va., on January 30.

Mr. J. H. Kempton attended a conference on New Electrical Aids for biological and medical research held in Philadelphia, Pa., on January 29 in connection with the winter convention of the American Institute of Electrical Engineers.

Dr. K. S. Quisenberry came to Washington on January 20 to confer with research workers and to consult with Department officials regarding cereal research, particularly wheat. He returned to Lincoln, Nebr., February 9.

Dr. S. C. Salmon spent 10 days beginning January 20 in Wyoming, Kansas, and Iowa conferring with personnel of the Division and State agricultural experiment stations regarding noxious weed research.

Mr. Ralph O. Snelling, Dr. George F. Sprague, and Mr. Glen H. Stringfield arrived in Washington on January 20 for a four-day conference with Department officials regarding corn breeding research.

Mr. Stringfield gave an informal talk with lantern slides at the meeting of the Pennsylvania Dairymen's Association held in Harrisburg, Pa., January 23.

RECENT PUBLICATIONS

J. Allen Clark. Results of Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1940, with Averages for 1929 to 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 45 pp. January 25, 1941.

C. O. Johnston. Some Species of Triticum and Related Grasses as Hosts for the Leaf Rust of Wheat, Puccinia triticina Eriks. Trans. Kans. Acad. Sci. 43: 121-132. 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

_____ and E. C. Miller. Modification of Diurnal Transpiration in Wheat by Infections of Puccinia triticina. Jour. Agr. Res. 61(6): 427-444, figs. 1-5. September 15, 1940. (G-1169) (Cooperative investigations of the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Kansas Agricultural Experiment Station.)

R. W. Leukel and O. A. Nelson. The Use of Chlorine Gas as a Seed Disinfectant. U. S. Dept. Agr. Cir. 576, 16 pp., 1 fig. December 1940.

E. S. McFadden. Sten Rust is Now Migrating to the Sunny South to Spend the Winter Months. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 25(1): 24-25. January 15, 1941. [Mimeographed.] (Cooperation between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

S. R. Miles. 1940 Indiana Corn Performance Tests. Purdue Univ. Agr. Expt. Sta. Agronomy Rpt. No. 16, 35 pp. January 1941. [Mimeographed.] (Cooperation between the Purdue University Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

D. W. Robertson and G. A. Wiebe. [illegible] Genetic Studies in Progress 1939-1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 23 pp. November 25, 1940. [Mimeographed.] (Cooperative investigations between the Colorado Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

_____, G. A. Wiebe, and F. R. Immer. A Summary of Linkage Studies in Barley. Amer. Soc. Agron. Jour. 33(1): 47-64. January 1941. (Contribution from the Colorado Agricultural Experiment Station, the Division of Cereal Crops and Diseases, and the Minnesota Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Washington

Office of Chief of Bureau

January 13, 1941

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Section 321 (b) of the Transportation Act of 1940 terminates land grant freight privileges for the civil establishments of the Government and authorizes rail carriers to charge commercial rates with the proviso that land grant rates will continue to apply until the carrier files with the Secretary of the Interior a release of any claim against the Government to lands or pertaining to lands. Such releases will be issued from time to time by the Secretary of the Interior.

It has been noted that employees in the field, in some instances, have been placing detailed routings on the bills of lading. These detailed routings, insofar as practicable, included land grant railroads. In view of the fact that some of the land grant carriers used in the detailed routings will from time to time be released by the Secretary of the Interior, it is thought advisable when preparing a Government bill of lading to indicate the name of the initial carrier and follow same with a notation reading "Forward via lowest reasonable available route". Of course this procedure would apply only to less carload rail freight or express shipments. Specific routings should be obtained through this office for the making of carload rail shipments and combination rail-water or all-water shipments.

Yours very truly,

/s/ Geo. B. Holmes
Geo. B. Holmes
Jr. Administrative Assistant.

GBH:het

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Feb. 6)

Weather conditions in January were about normal. The total precipitation of 4.97 inches was 0.29 inch less than the 31-year average for January.

The maximum temperature for the month was 82°, the minimum 27°, and the average mean 54°. The temperature was freezing or below on only two days.

After frequent interruptions, caused by rains, rice farmers who had not been able to thresh in December, succeeded in completing threshing operations by the third week in January. Low temperatures prevented the grain from sprouting. Where the shocks were well constructed and were not disturbed until immediately before threshing, there was very little loss from weather damage.

The relatively mild weather that has prevailed so far this winter has reduced the anticipated loss among cattle. Unfavorable weather conditions in the summer and fall caused many cattle to die and left many more in a low state of vigor on poor pastures. Without special care, most herds by spring will be greatly reduced in number.

On January 28, the Contact Committee on the Rice Experiment Station, composed of farmers, held its second meeting at the Station. Four of the seven members were present. Dean Lee, Director Dowell, and interested members of the Extension Service were also in attendance. The principal object of the meeting was to acquaint the members of the Committee with the work being done with rice on this Station and at the Central Station. During the meeting, much interest was expressed in the matter of increasing and certifying seed rice.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Feb. 1)

After several days of very mild weather the ground again is bare except for shaded spots and stubble fields, where a little snow remains. Most of the time this winter there was barely enough snow to keep the ground white, the maximum depth being 4 or 5 inches early in November which lasted only a short time. There have been no bad storms or winds to date and no drfits to block the roads.

The mean temperature in January was 14.3°, or nearly 4° above normal. The maximum was 48° on the 30th and 31st and the minimum, -13° on the 25th. The precipitation for the month was 0.18 inch.

The winter grain should be in fairly good condition with plenty of moisture in the surface soil from autumn rains.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Jan. 31)

After a period of continuous wet weather from December 16 to January 26 we again have "normal" sunshine. The precipitation to date totals 15.9 inches; the normal is 9.0 inches; and the average for the crop year (July to June) is 16.9 inches. Very little of the precipitation this winter was lost in run-off. Stands of experimental material are unusually good and uniform. Only a few deliberately-late plantings remain to be made.

This Station is abandoning field plots for determination of yields. Thirty-five single plots are being grown to supply milling and malting samples, to carry certain composite breeding stocks, and permit observation of certain advanced experimental varieties. Yields henceforth are to be based on 16-foot nursery row performance, utilizing two dates of planting. We are making the change despite our combine harvester equipment which permitted harvest of randomly distributed plots.

Cereal plantings at this Station are probably at an all time high this season. Our work, combined with that of Dr. Briggs and his students, totals more than 17,000 rod rows. A substantial part of these are F_3 selections from backcrossing projects, being given a final check for conformity to type before bulking.

Both leaf and stem rust are overwintering on volunteer wheat. The scald nursery has far more net blotch than scald, and the threatened heavy defoliation by the former may make genetic classification for scald reaction difficult. Normally-sown cereals do not as yet show any diseases other than mildew.

The increase in the use of California barley for feed this year is of interest. The 1940 harvest yielded some 800,000 short tons and the carry-over from the previous crop was reported as 152,000 tons. Under this large supply the market dropped to 70 cents a hundred at harvest, mindful of the loss of the export market which has previously absorbed about 160,000 short tons annually. The low price of barley and favorable meat prices attracted feeders. As a result, it is now estimated that 730,000 tons of barley will be fed this year as compared with a recent annual average of about 400,000 tons, and only a small carry-over is predicted. Barley prices now are above $1.10 per hundred.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
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Vol. 33 March 10, 1941 No. 3

Personnel (Feb. 11 - Mar. 10) and Field Station (Feb. 1 - 29)

PERSONNEL ITEMS

Dr. H. V. Harlan left Washington February 18 for his annual trip through the barley-producing States to confer with members of the malting trade regarding barley, to take notes on experimental barley plantings, harvest experimental barley material, and to confer with Government and State officials regarding barley.

Dr. C. S. Holton arrived in Washington March 10 to assist in preparing manuscripts on smut research.

Dr. M. T. Jenkins left Washington on March 2 to confer with State and Federal officials in Tennessee and Louisiana with reference to cooperative corn improvement research.

Mr. J. W. Jones left Washington February 25 to confer with officials of the Louisiana Agricultural Experiment Station and Rice Contact Committee regarding new rice experiments.

RECENT PUBLICATIONS

W. L. Goss and Edgar Brown. Buried Red Rice Seed. (Note) Amer. Soc. Agron. Jour. 32(12): 974. December 1940. (Contribution from the Grain and Seed Division, Agricultural Marketing Service, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry.)

C. S. Holton. Preliminary Investigations on Dwarf Bunt of Wheat. Phytopathology 31(1): 74-82, figs. 1-5. January 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

V. C. Hubbard. An Inexpensive, Practical Nursery Harvester. (Note) Amer. Soc. Agron. Jour. 33(1): 86-88, fig. 1. January 1941. (Contribution from the Division of Cereal Crops and Diseases and the Division of Dry Land Agriculture.)

H. B. Humphrey and J. Allen Clark. Summary of Uniform Spring Wheat Rust Nursery for 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. [January 25, 1941.] [Mimeographed.]

R. W. Jugenheimer, A. L. Clapp, and H. D. Hollembeak. Kansas Corn Tests, 1940. Kans. Agr. Expt. Sta. Bul. 292, 47 pp., 2 figs. January 1941. (Cooperative investigations of the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

E. S. McFadden. Stem Rust is Now Migrating to the Sunny South to Spend the Winter Months. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 25(1): 24-25. January 15, 1941. [Mimeographed.] (Cooperation between the Division of Cereal Crops and Diseases and the Texas Agricultural Experiment Station.)

V. H. Morris, C. R. Neiswander, and J. D. Sayre. Toxicity of Selenium-Containing Plants as a Means of Control for Red Spiders. Plant Physiology 16: 197-202. 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

Robert E. Powell and Dean C. Anderson. 1940 Report of the Yield Trials with Corn Hybrids and Varieties in Missouri. Mo. Agr. Expt. Sta. Manual 12, 26 pp. February 1941. (Cooperative investigations of the Missouri Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

K. S. Quisenberry. Report of the Great Plains Uniform Winter-Hardiness Nurseries of 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 3 pp. February 10, 1941. [Mimeographed.]

H. A. Rodenhiser and J. Allen Clark. Summary of Uniform Spring Wheat Bunt Nursery, 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. [January 25, 1941.] [Mimeographed.]

Glenn M. Smith. Indiana Sweet Corn Performance Tests, 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 9 pp. [1941.] [Mimeographed at the Purdue University Agricultural Experiment Station.] (Cooperative investigations of the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

J. T. Spencer. A Comparative Study of the Seasonal Root Development of Some Inbred Lines and Hybrids of Maize. Jour. Agr. Res. 61(7): 521-538, figs. 1-6. October 1, 1940. (G-1176) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

G. H. Stringfield. Hybrid Corn in Ohio--Historical Notes. Ohio Agr. Expt. Sta. Bimo. Bul. 26(208): 3-5. January-February 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

G. A. Wiebe, P. R. Cowan, and Lucille Reinbach-Welch. Yields of Barley Varieties in the United States and Canada, 1932-36. U. S. Dept. Agr. Tech. Bul. 735, 78 pp. December 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Experimental Farms Service, Dominion Department of Agriculture, Canada.)

Marcus S. Zuber and Joe L. Robinson. The 1940 Iowa Corn Yield Test. Iowa Agr. Expt. Sta. Bul. P19, 76 pp., 1 fig. January 1941. (Cooperative investigations between the Iowa Corn and Small Grain Growers' Association, the Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
Washington, D. C.

Office of Plant and Operations

February 6, 1941.

Plant and Operations Circular No. 9

From time to time questions have arisen as to the use of the penalty mailing privilege by United States Department of Agriculture clubs. This matter has been presented to the Third Assistant Postmaster General, Mr. Ramsey S. Black, who stated in reply:

> "It is understood these clubs are functioning at the instance and under the supervision of the Office of Personnel, United States Department of Agriculture, and that correspondence, circulars, etc., relating to the activities of such clubs sent by officers of your Department in the performance of their official duties and in their names as such officers are transmissable free of postage in the penalty envelopes of the United States Department of Agriculture."

In accordance with this ruling and to identify fully such correspondence as official matter, officers of the United States Department of Agriculture clubs should sign correspondence and circulars pertaining to these clubs with their full official titles as employees of the Department rather than as just officers of the clubs. Official letterheads should always be used.

If an employee desires to sign a communication or a circular with his club title, this is permissable providing his official title as an employee of the Department is also included.

(Signed) Jacob M. Schaffer
Acting Chief, Office of Plant and Operations.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B.P.I. Memo. 1180

March 10, 1941

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

The Appropriation Bill providing funds for the Department of Agriculture for the fiscal year 1942 contains the following provision:

Alien employment.

"Sec. 2. No part of any appropriation contained in this act or authorized hereby to be expended shall be used to pay the compensation of any officer or employee of the Government of the United States, or of any corporation the majority of the stock of which is owned by the Government of the United States, whose post of duty is in the continental United States unless that person is a citizen of the United States; Provided, That this section shall not apply to any person in the service of the United States on the date of the approval of this act who being eligible for citizenship had theretofore filed a declaration of intention to become a citizen or who owes allegiance to the United States: Provided further, That this section shall not apply to employment of translators on a temporary basis where competent citizen translators are not available and it shall not apply to the temporary employment of persons in the field service for periods of less than 60 days."

There is every reason to believe that this proviso will remain in the Bill, and will become law on July 1, 1941. Its requirements should be borne in mind in connection with all employment from this time forward.

Very sincerely,

(Signed) E. C. Auchter
Chief of Bureau

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SOLICITOR
Washington, D. C.

February 14, 1941

MEMORANDUM FOR MR. ROY F. HENDRICKSON
Director of Personnel

Dear Mr. Hendrickson:

Reference is made to Mr. Gladmon's memorandum of December 18, 1940 (E:LB), requesting our advice concerning the application of the Joint Resolution of June 29, 1938 (5 U.S.C., sec. 86a), to two unskilled laborers employed in the field service of the Soil Conservation Service. The specific questions are stated in a memorandum of November 15, 1940, from Miss Mohagen of the Soil Conservation Service, as follows:

> "1. If an employee has a fixed working day of less than the usual 7 or 8 hours (for example 3 hours per day) and works the same hours each day (for example from 9:00 a.m. to 12:00 noon) would he be considered a regular employee and entitled to three hours pay for a holiday on which no service is performed, provided he meets all other requirements of Public Resolution No. 127?"
>
> "2. If an employee whose working day consists of less than 7 or 8 hours per day (for example 3 hours per day) does not work the same three hours each day (that is if he works 9:00 a.m. to 12:00 noon one day, 1:00 p.m. to 4:00 p.m. another day, etc.) would he be considered a regular employee and entitled to three hours pay for a holiday on which no service is performed, provided he meets all other requirements of Public Resolution No. 127?"

Your office further requests advice as to whether these employees are entitled to annual and sick leave under the acts of March 14, 1936.

The holiday compensation statute for per diem employees (5 U.S.C., sec. 86a, supra) was not intended to enlarge the classes of workers receiving per diem compensation under the previously existing law, but is merely for the purpose of changing the basis of payment. 18 Comp. Gen. 481. This decision also limits the application of the expression "regular employees", appearing in the statute, to persons "required to work or to be available for duty full time during a regular tour of duty***." Even assuming, therefore, that these laborers are of the class intended to be covered by the statute, the individuals described are not working "full time", but are rendering only a portion of the service ordinarily required for such employment. See Paragraph 2211, Department Regulations. They must, therefore, be regarded as not entitled to the benefits of the holiday statute. See also 19 Comp. Gen. 337. In 19 Comp. Gen. 746, it is implied that part-time employees are not "regular", within the meaning of the holiday statute.

With regard to your second question, it is believed that the employees must be regarded as part-time employees and, therefore, not entitled to annual or sick leave under Section 19(f) of Executive Order No. 8394 and Section 23(g) of Executive Order No. 8385, prescribing uniform leave regulations. The definition of part-time employees for leave purposes, in Secretary's Memorandum No. 691 of April 29, 1936, states that "Part-time employees are those appointed and required to perform services part of a day where the job or the employment is a full day's service of seven or eight hours." It is our understanding that this definition is being incorporated into the current revision of the Department regulations regarding leave.

Very truly yours,

(Signed) Mastin G. White
Solicitor

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) [Feb. 28]

Snow covered the ground continuously from February 19 to 28. The ground was frozen when the first snow fell but thawed under the snow a few days later. As a whole, the month was cool and aside from slight growth on one or two days the small grains made little growth.

Seedings of wheat, oats, barley, and rye on February 1 have not emerged although the seed was germinated several weeks ago.

The spring barley, oat, flax, and wheat nurseries were seeded on February 11. The seedbed was in excellent condition and with the present subsoil moisture, prospects are bright for the small grains in 1941.

Little or no winter killing has occurred since the severe drop in temperatures last November which caused appreciable killing in winter barley and winter oat varieties and in a number of tender wheat hybrids.

High winds on several days in February moved considerable soil but with apparently little damage except in exposed or bare fields. Fields in western Oklahoma and Texas with even a little fall growth of wheat were not damaged appreciably.

Subsoil moisture conditions are the best in years. "Hard" land is wet below 5 feet. Since last September 10.88 inches of precipitation has fallen with very little run-off. Two inches was recorded in February.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Feb. 19)

The weather in January and the first half of February was comparatively mild in the central plains area. No extremely low temperatures were recorded although temperatures approached 10° F. on several days during January. Moisture for January was above normal and the ground was extremely muddy during most of the month. County roads were nearly impassable in many sections and farm work was at a standstill. Much corn remains unhusked owing to the inability of farmers to get wagons into the fields. Livestock men complained of the impossibility of using wheat pasture and of extreme difficulty of handling cattle in feed lots.

Winter wheat seems to be coming through the winter in excellent condition in most parts of Kansas. A small amount of winter killing has been reported from southwestern counties but the condition seems to be strictly local, as competent observers comment enthusiastically on the stand and condition of winter wheat in the western half of Kansas this year. That portion of the dust bowl in Kansas seems to have disappeared under a carpet of winter wheat. So far this winter only one severe dust storm has been reported. On February 12 there was a severe duster but the dust was not of local origin.

There is an unusually large amount of overwintering of leaf rust of wheat throughout the southern and central plains area this year. A small amount of leaf rust has been found in the vicinity of Manhattan throughout the winter. The latest collection was made on February 17. Thus far, however, there has been no increase in the amount of rust. Recent reports indicate that leaf rust is beginning to increase in central Oklahoma. At the present moment it looks as though the stage is set for an early and heavy infection of leaf rust in 1941.

The stem-rust situation is very different. The heavy infection of stem rust last fall disappeared rapidly during December and January. Recently the writer has been unable to find stem-rust uredia on live leaves. Spores from old uredia on dead leaves collected early in January failed to germinate. Leaf rust collected the same day germinated well and gave excellent infection.

Samples and reports of leaf rust of wheat and crown rust of oats have been received from the San Antonio area in Texas but no stem rust collections or reports have been received thus far.

Rust work in the greenhouse at Manhattan is well advanced. More than 100 field collections of leaf rust have been cultured and analyzed for physiologic races. The testing of varieties and hybrids of both wheat and oats with known physiologic races is nearing completion. Work on reports and manuscript is under way.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Mar. 1)

During February the ground was bare most of the month until a light snowfall of about 3 inches fell during the last week. Most of this melted away on the 28th so now the ground is bare again, except for a few shaded spots especially in stubble.

The total precipitation for February was 0.27 inch, or somewhat below normal. The maximum temperature was 53° on the 28th. The minimum was -26°.

Planting plans for the spring wheat nursery are nearly completed and the measuring of seed for sowing will begin next week.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Mar. 5)

Although the minimum temperature for the winter of 1940-41 was only 9°, Federation wheat on the Station shows from 5 to 25 percent winterkilling. None of the plots will require reseeding. However, in some sections of Umatilla County the damage is so great that the farmers are preparing to reseed. Varieties with a winter habit of growth are not hurt. Several varieties with a spring-growth habit in the foreign wheat introduction nursery show less than 10 percent survival. Winter barley varieties show no apparent injury. M. M. Oveson reports that at Moro all wheat varieties came through with good stands.

A number of farmers in the vicinity seeded Grey Winter or Markton oats in a hay strip around their wheat fields, and in most cases reseeding will be necessary.

Except where winterkilling was severe, stands of wheat are in fine shape and prospects are bright for an excellent crop. Reserve soil moisture is the best in years, so with average weather during the spring the elevators should be filled to capacity.

Our seedbeds were in shape to begin seeding this morning (March 5), but rain last night delayed operations for a while. If no more rain falls, we can begin seeding in about two days.

Precipitation during January and February was deficient, being 1.21 inches and 0.99 inch, respectively, compared with averages of 1.82 and 1.55 inches for the years 1929 to 1940.

CALIFORNIA

BIGGS RICE FIELD STATION, BIGGS (Rice Agronomy, L. L. Davis) (Mar. 3)

California is experiencing one of the wettest winters on record. Since September 1, 1940, the total precipitation has been 31.09 inches at the Biggs Rice Station. Since December 16, when the rains began, precipitation was recorded on 50 of the 78 days. The 27-year average seasonal rainfall, to date, is 14.83 inches. No field work has been possible this spring in the rice section of California. With the apparent loss of most of the wheat and barley crops on the adobe soils due to wet conditions, and the substantial increase in the price of rice, it is possible that there will be an increase in the rice acreage in California this year.

Operations at the Station have been confined entirely to inside work, such as preparation of the annual report, seed cleaning, preparation of planting lists, and making milling tests. The rice nursery will be increased materially this year to take care of a large number of rice crosses in the F_3 and later generations.

The average yields of rice varieties grown in 1940 in quadruplicated 1/66-acre plots are presented in the following table. The Calady 40 variety, which heads the list in yield, is a pure line selection from Calady (C.I. 7786). This variety has yielded about 9 percent more than Caloro during the four years tested. About 450 sacks of this variety are being distributed to farmers this spring for growing under the California Calapproved seed plan.

Average yield of rice varieties grown in quadruplicated 1/66-acre plots, Biggs Rice Field Station, Biggs, Calif., 1940.

Variety	C. I. No.	Average yield (Lbs. per acre)	Average yield (Bu. per acre)
Calady 40 1/		5,296	117.7
2913A32-1-1-2-1 (Colusa x Blue Rose) 1/	----	4,867	108.2
2715A2-1-1-1-2-2-1-3 (221A83-8 x Caloro)	----	4,818	107.1
Early Wataribune	----	4,768	106.0
Plant 14 (Colusa x Caloro)	----	4,636	103.0
2914A20-1-2-1 (Caloro x Blue Rose) 1/	----	4,603	102.3
Caloro (Average 12 check plots)	----	4,560	101.3
244A6-20 (Niro Vialone x Wataribune)	----	4,554	101.2
243A6-50 (Colusa x Lady Wright)	----	4,521	100.5
Selection 175	----	4,513	100.3
241B5-3-1-1-1-2-30 (Caloro x Lady Wright) 1/	----	4,480	99.6
241B5-14-3-1-4-1-1-1-1 (Caloro x Lady Wright)	----	4,438	98.6
Kinai No. 195	5684	4,389	97.5
241B5-3-1-1-1-2 (Caloro x Lady Wright)	----	4,389	97.5
Haya Kitabu	6949	4,372	97.2
243A17-3-1-1-1-1 (Colusa x Lady Wright)	----	4,372	97.2
2914A46-1-1-1-1 (Caloro x Blue Rose) 1/	----	4,298	95.5
Tosa Bozu	5747	4,298	95.2
2913A26-1-2-1-1-1 (Colusa x Blue Rose) 1/	----	4,240	94.2
2715A12-1-3 (221A83-8 x Caloro)	----	4,240	94.2
241B7-33-6 (Caloro x Lady Wright)	----	4,174	92.8
Gin Bozu	6873	4,158	92.4
Onsen	----	4,092	90.9
Lady Wright selection 31 2/	----	3,985	88.6
241B7-3-1-1-1 (Caloro x Lady Wright)	----	3,960	88.0
Zenith 1/	7787	3,943	87.6
2913A61-1-1-1-1-2 (Colusa x Blue Rose) 1/	----	3,902	86.7
Calady 1/	7786	3,894	86.5
Colusa	1600	3,877	86.2
Early Prolific 1/	5885	3,811	84.7
Lady Wright 2/	5451	3,597	80.0
283A5-6-4-1-1-1 (Edith x Fortuna) 2/	----	3,498	77.7
283A2-1-1-1 (Edith x Fortuna) 2/	----	3,267	72.6

1/ Medium grain type. 2/ Long grain type.

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Mar. 8)

"The winter of continuous rain" is about over--at least the sun has been shining for three days. Rainfall to date is 23.7 inches, which is more than 50 percent above normal. We had above normal precipitation in 1939-40 also. The water table had risen so high that many homes in Davis are now pumping water from basements.

Early varieties are beginning to head on the Station. None of our stands were damaged by standing water. Much grain has been killed on heavier soils and lowlands. Tillering is generally poor.

Leaf and stem rusts on wheat and crown and stem rusts on oats, which overwintered locally on early germinating volunteer plants, are beginning to spread. Stem rust also overwintered on some of Sando's perennials. At this stage it looks like 1941 will be another bad rust year in California.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Mar. 3)

During the past few months temperatures have been very mild and precipitation abnormally high in southern Arizona. At Tucson the mean temperature from December 1 to date averaged from 2 to nearly 6° higher than normal. There were no killing frosts in December or February and only four in January. The total precipitation for the above period was 6.38 inches, which was about twice the normal. There have been only 14 clear days since January 1.

The rains have also been general over most of Arizona. The Salt River Valley Irrigation Project, which includes the section around Mesa and Phoenix, had practically no water in its reservoirs last fall, but now has over a million acre feet. This is more water in storage than the Project has had since early 1937.

However, there seems to be indication that the heavy rains may cause some crop injury, at least if the plantings at Tucson are representative of those in southern Arizona. Owing to the mild temperatures and high soil moisture, the cereal plants at Tucson have tillered excessively and have abnormally large leaves. The thick stands and rank growth favor lodging. Some of the oats and wheat and most of the barleys at Tucson are already lodged.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 April 10, 1941 No. 4

Personnel (Mar. 11 - Apr. 10) and Field Station (Mar. 1 - 31)

PERSONNEL ITEMS

Dr. B. B. Bayles returned to Washington on March 28 from a trip to Ohio, where he conferred with officials of the State agricultural experiment station and of the Bureau of Plant Industry in regard to future plans for research program on the quality in wheat at the Federal Soft Wheat Laboratory.

Dr. Allan D. Dickson arrived in Washington March 12 to confer with Bureau personnel on barley research.

Mr. M. A. McCall returned April 7 from a trip to Illinois and Iowa where he discussed plans for research on grain storage with cooperators.

Mr. H. H. McKinney left Washington April 9 for a trip through Oregon, Kansas, Illinois, and Indiana to take field notes on experimental plots of mosaic disease of wheat and to confer with Federal and State officials regarding the disease.

Dr. G. A. Wiebe left Washington on April 9 for a month's trip to Arizona to take notes and harvest barley collections.

RECENT PUBLICATIONS

C. Roy Adair. Inheritance in Rice of Reaction to Helminthosporium oryzae and Cercospora oryzae. U. S. Dept. Agr. Tech. Bul. 772, 19 pp. April 1941. (Contribution from the Division of Cereal Crops and Diseases in cooperation with the Arkansas Agricultural Experiment Station.)

[B. B. Bayles, compiler] Reaction of Wheat Varieties to the Major Diseases and Hessian Fly. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 12 pp. March 11, 1941. [Mimeographed.]

J. Allen Clark. Registration of Improved Wheat Varieties, XIV. Amer. Soc. Agron. Jour. 33(3): 255-256. March 1941.

J. G. Dickson. The History of the Development and Industrial Use of Barley in North America. Modern Brewery Age 25(3, pt. 1): 49-57. March 1941.

Merle T. Jenkins. Results of the Cooperative Uniform Comparisons of Corn Hybrids 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 65 pp. March 20, 1941. [Mimeographed.]

N. E. Jodon. Progress in Improving Rice Varieties. Rice Jour. 44(2): 9-10. February 1941. (Cooperative investigations between the Louisiana Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Reginald H. Painter and Arthur M. Brunson. Differential Injury within Varieties, Inbred Lines, and Hybrids of Field Corn Caused by the Corn Earworm, Heliothis armigera (Hbn.) Jour. Agr. Res. 61(2): 81-100, 3 figs. July 15, 1940. (Kans.-93)

K. S. Quisenberry. Small Grain Varietal Trials in Nebraska. Ann. Rpt. Nebraska State Bd. Agr. 1940: 75-87, illus. 1940.

H. A. Rodenhiser and K. S. Quisenberry. Summary of the Great Plains Uniform Winter Wheat Bunt Nursery, 1940. U. S. Dept. Agr., Bur. Plant Indu., Div. Cereal Crops and Dis. [Unnumb. Pub.] 2 pp. February 27, 1941. [Mimeographed.]

R. S. Rosenfels. Whitetop Control on the Newlands Project in Nevada. Reclamation Era 31(2): 47-50, illus. February 1941.

S. R. Snider. The Determination of Total Beta-Amylase in Barley and Barley Malt. Cereal Chem. 18(2): 186-200, fig. 1. March 1941.

G. F. Sprague and A. A. Bryan. The Segregation of Genes Affecting Yield Prepotency, Lodging, and Disease Resistance in F_3 and F_4 Lines of Corn. Amer. Soc. Agron. Jour. 33(3): 207-214, fig. 1. March 1941. (Contribution from the Farm Crops Subsection, Iowa Agricultural Experiment Station, cooperating with the Division of Cereal Crops and Diseases.)

Roderick Sprague. Cereal Root-Rot Investigations and Control Factors. N. Dak. Agr. Expt. Sta. Bimo. Bul. 3(3): 19-22. January 1941. (Cooperative investigations between the North Dakota Agricultural Experiment Station and the Divisions of Cereal Crops and Diseases and Forage Crops and Diseases.)

T. R. Stanton. Registration of Varieties and Strains of Oats, X. Amer. Soc. Agron. Jour. 33(3): 246-251. March 1941.

G. H. Stringfield, R. D. Lewis, and H. L. Pfaff. The 1940 Ohio Cooperative Corn Performance Tests. Ohio Agr. Expt. Sta. Spec. Cir. 61: [2]-30, illus. February 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Ohio State University, and the Ohio Agricultural Experiment Station.)

[C. A. Suneson] Report of the Fourth Wheat Improvement Conference in the Western Region. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 45 pp. June 24-26, 1940. [Mimeographed.]

C. A. Suneson. Results from Cooperative Wheat Varietal Experiments in the Western Region in 1940 with Averages for 1931 to 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 40 pp. February 20, 1941. [Mimeographed.]

V. F. Tapke. A Technique for Identifying the Loose Smuts of Barley. (Phytopath. Note) Phytopathology 31(3): 284-286, figs. 1.

J. W. Taylor and F. A. Coffman. A Satisfactory Support for Cereals Growing in Pots. (Note) Amer. Soc. Agron. Jour. 33(3): 264-265, fig. 1. March 1941.

E. C. Tullis and W. M. Cralley. Longevity of Sclerotia of the Stem-Rot Fungus Leptosphaeria salvinii Catt. Phytopath. 31(3): 279-281. March 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arkansas Agricultural Experiment Station.)

APPROVAL OF MANUSCRIPTS

All manuscripts involving cooperative work for publication in outside Journals or Department publications must be approved by the cooperating agency before they can be approved by the Bureau of Plant Industry. Approval by the cooperating agency before they are submitted to the Division will facilitate approval in Washington.

Some manuscripts after attention in the Division, especially those to be published in Departmental channels, may require extensive reconsideration by the author. The revised manuscript then should be re-submitted for approval to the cooperating agency either before or after it has been put into final form.

Manuscripts prepared by Bureau personnel for publication in Departmental channels preferably should be submitted to the Division for suggestions and tentative approval before presentation to the cooperating agency or the Bureau for final approval.

M. A. McCall
Head Agronomist in Charge,
and
Assistant Chief of Bureau.

NOTE

Field personnel of the Division who desire help with experimental designs or assistance in determining suitable statistical analysis of data are invited to submit their problems to Mr. Otto E. Rauchschwalbe, Junior Statistician, Division of Cereal Crops and Diseases. It is not anticipated that Mr. Rauchschwalbe will have time to do much with the actual calculations; rather that his services will consist of suggestions with respect to procedures, statistical interpretations, and sources of literature not generally available.

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1188 March 28, 1941

MEMORANDUM FOR HEADS OF DIVISIONS.

Gentlemen:

There is enclosed a copy of Memorandum No. 893 by the Secretary, dated March 21, entitled "Activities by Department Officers and Employees with Relation to General Farm Organizations".

Will you kindly see that this memorandum comes to the attention of all members of your staff, both Washington and Field. Its terms are self-explanatory, and should be rigidly observed.

Very sincerely,

/s/ E. C. Auchter
Chief of Bureau.

Enclosure.

UNITED STATES DEPARTMENT OF AGRICULTURE
OFFICE OF THE SECRETARY
Washington, D. C.

March 21, 1941.

MEMORANDUM NO. 893

ACTIVITIES BY DEPARTMENT OFFICERS AND EMPLOYEES WITH RELATION TO GENERAL FARM ORGANIZATIONS

Recently, reports have reached the Department of Agriculture that officers or employees of the Department have participated actively in meetings and in other activities concerned with the establishment of general farm organizations, or with recruiting members for existing farm organizations.

It has long been the established policy of this Department that its officers and employees shall refrain from taking any part in activities of this type. This is a necessary corollary of the equally long-established policy of the Department that it shall deal fairly with all farm organizations and deal with each upon the same basis.

As a continuation of this policy, it should be understood by all officers and employees of the Department that it is not permissible for any of them to -

1. Participate in establishing any general farm organization.

2. Act as organizer for any such general farm organization, or hold any other office therein.

3. Act as financial or business agent for any general farm organization.

4. Participate in any way in any membership campaign or other activity designed to recruit members for any such organization.

The phrase "general farm organization" used in this memorandum is intended to refer to such national. regional, or State farm organizations as, among others, The National Grange, The American Farm Bureau Federation, The Farmers' Union, The Farmers' Equity League, the Missouri Farmers' Association, The Farmers' Holiday Association, and their regional, State, and local constituent groups.

This statement should not be construed as implying an unfriendly attitude toward farm organizations. Farmers, like other great economic groups in our society, require non-governmental organizations through which they may develop and express their hopes, aspirations, and desires; through which they may make our democratic processes vital; through which, collectively, they may reach the right people at the right time. But the Department must distinguish clearly between what it is proper for a non-governmental farm organization to do, and what it is proper for a governmental employee to do. The same reasoning which led to the Congressional enactment that governmental employees should not directly or indirectly take any action to influence the legislative process (except through the established procedures of government), also leads to the conclusion that official personnel must not aid in the formation or development of farm organizations, no matter how desirable they may be.

Employees may, of course, participate in the organization of groups that are needed in carrying out Federally authorized programs--for example, an REA cooperative, a cooperative of FSA borrowers, and similar groups determined by the appropriate chief of bureau to be essential in effectuating Federally authorized programs. Even here, however, care must be exercised because the Department does not wish to see this type of specialized organization develop into a general farm organization. Certainly it is contrary to policy for local groups that participate in Federal-program effectuation to federate into State, Regional, or national organizations.

The head of every bureau and office of the Department is requested to bring this memorandum to the attention of all its officers and employees, both in Washington and in the field. If any violations of any of the provisions of this memorandum should occur, full information with reference thereto should at once be submitted to the Director of Personnel by the head of the bureau in which the person violating any of these provisions is employed.

/s/ Claude B. Wickard
Secretary.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Apr. 8)

The maximum temperature for February was 69°, the minimum 30°, and the average mean 51°. Ice formed on three days. The total precipitation for the month of 2.62 inches is 1.49 inches less than the 31-year average for February.

The maximum temperature for March was 76°, the minimum 33°, and the mean 54°.

The total precipitation of 8.24 inches for March is 4.44 inches more than the average. The only time in 31 years that the March precipitation exceeded the above figure was in 1926 when it was 11.51 inches.

Because of weather conditions, very little field work was accomplished in February and March. The frequent showers in February, with few clear days, caused rice lands to remain too wet to work most of the month. Heavy rains in March prevented field work until the last few days of the month.

Mortality has been high among cattle in southwestern Louisiana that were weakened from over exertion and lack of food in the August flood. Dry weather in September prevented pastures from recovering before the cold weather which began rather early in September and continued until the end of March. Many farmers fed their cattle, but in some cases they were in too weakened a condition to respond to the feeding.

The third meeting of the Rice Growers Contact Committee met at the Station February 27, 1941. Only two of the eight members were present. In addition to the Station personnel, Mr. J. W. Jones, Director Dowell, and other members of the Station staff from the Louisiana State University were present.

Mr. W. A. Douglas discussed his work with rice insects, Dr. T. C. Ryker discussed his work with rice diseases, and Mr. N. E. Jodon explained the Station rice breeding program.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Apr. 1)

The writer has returned to Denton after having been absent since January 1.

Precipitation during January was only 0.39 inch, but owing to the prevailing cloudy weather and wet ground little field work was possible and small grains made very slow growth. The maximum temperature for the month was 70°, the minimum 25°, and the mean 48.7°, or 4.3° above normal.

Weather conditions in February were only slightly more favorable. The total precipitation was 3.75 inches, or 1.72 inches above normal. Some field work was possible during the period February 10 to 17, and spring small grains were sown under fairly favorable conditions. The mean temperature for the month was 46.5°, or 1.9° below normal. The minimum was 24°. Leaf rust of wheat and mildew of barley and wheat became established.

In March the weather was too cool and the soil too wet for favorable growth of small grains. The precipitation was 1.70 inches and very little field work was possible. The mean temperature was 52.4°, or 3.5° below normal, the maximum 80°, and the minimum 29°. Corn planting is delayed, much of the acreage is still unplanted and practically none has emerged. Leaf rust of wheat has spread very slowly but barley mildew has gained considerable headway. Farmers report considerable damage by greenbugs, especially on volunteer grain. During the last week small grain has taken on a better color and started to grow more vigorously. A few spring type barleys which survived the winter are starting to head. Fall-sown spring wheats are in the boot stage.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Apr. 1)

March came in with a strong wind from the south. The temperature climbed to a maximum of 63° and started the first appreciably vigorous growth since winter began. Moderately cool weather followed and little or no further growth was evident until March 21.

February 1 seedings of wheat, oats, barley, and rye emerged on March 1. The spring barley and spring oat and flax nurseries seeded February 11 emerged on March 9, 13, and 21, respectively. February 15 seedings emerged on March 16, except for rye which emerged two days earlier. All nurseries have good stands. No stem or leaf rust pustules have been noted.

Precipitation during the winter has been abnormal in amount and in distribution. Since January 1, 5.75 inches has fallen with no visible runoff except on streets or hard surfaces. This is 2.84 inches above the 27-year average.

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Apr. 1)

The condition of winter wheat ranges from excellent to abandoned fields in the immediate vicinity of Hays and in many other parts of the State. It is estimated that 15 to 20 percent of the fields in Ellis County will be abandoned. In many fields 10 to 20 percent of the stands have been killed, but such losses probably will have little effect on the yield since soil moisture penetration is the best for a number of years. Wheat is in an excellent condition wherever stands are fairly complete.

The primary cause of winter killing was the extremely low temperature on Armistice Day. Temperatures at that time were the lowest on record for so early in the season, and in many parts of the State they dropped to the zero mark or below. The injury occurred in spots where the snow cover was only a little less than in adjoining areas. A number of secondary causes may have attributed to the killing. Killing was found to be more severe where planting occurred after October 8 to 10, also where seeding was done in a loose seedbed. The full effects of the killing did not become apparent until after March 1.

The latter part of the winter was characterized by above normal rainfall and cold weather but with no great extremes in temperature. The unfavorable weather conditions made it difficult to carry on farm operations such as caring for feed. In many cases threshing of sorghum seed is just being completed.

The seeding of experimental oats, barley, and spring wheat was completed on March 31, which was two weeks late owing to wet ground.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Apr. 3)

During the last week it has been possible to get preliminary estimates on survival of winter wheat. For the most part killing has been more severe than expected, also it is extremely spotted. The amount of fall growth and snow protection at the time of the November storm greatly influenced survival. In spite of this, some interesting varietal differences are apparent. The following are the average survivals of some of the wheat varieties in plots at Lincoln.

Variety	C. I. No.	Survival in percent Av. of 5 replications
Nebred	10094	87
Iobred	6934	78
Kawvale x Tenmarq	11669	76
Hope x Turkey	11964	76
Nebraska No. 60	6250	74
Cheyenne	8885	72
Turkey (Nebr. No. 1)	-----	71
Tenmarq	6936	52
Oro x Tenmarq	11673	50
Blackhull	6251	50
Kharkof	1442	49
Chiefkan	11754	46

The high survival of Nebred is of interest and it has come through the winter in fine shape in various other tests. Nebraska No. 60 and Kharkof are [illegible]

Most of the late-seeded experiments will have to be abandoned. This includes the second date of the crops-weather study, the bunt nursery, and a part of the rust nursery. Differential killing has occurred in the yield units of the nursery, with many of the rust-resistant winter x spring selections being damaged severely.

During the last two weeks visits have been made to cooperative tests in 15 counties in the southeastern quarter of the State. In seven of these counties the nurseries are killed completely, while in the others differential killing has occurred, with Nebred being uniformly good and Blackhull, Tenmarq, and Chiefkan poor. The nurseries in the south-central section were damaged the most and killing has been very severe on farms in that area.

Seeding of spring grains started on March 31. Spring wheat and oat plots and most of the oat yield nursery were seeded before rain halted work today.

A visit to the west end of the State is to be made during the next week to take survival notes on winter wheat at Alliance and North Platte. More cooperative nurseries will be visited on this trip.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Apr. 2)

Several light snowfalls during March brought the total precipitation to 0.40 inch, as compared with a normal of 0.76 inch. Precipiation was below normal during each month of the winter. Owing to the heavy rainfall last September and October, however, the rainfall for September to March, inclusive, has been 1.12 inches above normal. The snowfall of 2 inches on March 15 and 16 was the nearest approach to a blizzard that has occurred the past winter. This was much less severe than in regions farther east. The minimum temperature for the month was 7° below zero on the 16th and the maximum 68° on the 29th.

The end of March brought very warm weather, bare ground, and the beginning of field work in several fields including those on the Substation. The ground froze last night and possibly unfavorable weather will prevent seeding for a few days.

Soil moisture conditions are good and the winter wheat and rye seem to have come through the winter with a better than average survival.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Mar. 18)

Precipitation was below normal, and temperatures were generally mild during the winter at Fargo. We had a severe blizzard on Armistice Day, but except for that, no very unusual weather occurred until March 15, when a severe windstorm and blizzard struck Manitoba, North Dakota, and Minnesota. About 9:30 p.m. a south wind shifted suddenly to the north, and in a few minutes the velocity rose to 75 miles per hour. Grand Forks reported a velocity of 85 miles. Although not more than an inch of snow was recorded, the wind-blown snow was blinding and many lives were lost.

Not much damage occurred on the college campus. A section of the eaves, 4 x 8 feet, was torn from an adjacent building, Francis Hall, carried up and over the agricultural building where it knocked off a ventilator and some tiles, and fell not far from the greenhouses. Fortunately nothing in the greenhouses was damaged. A durum wheat crop sown in the greenhouse January 13 is now heading, 60 days later, and crosses are being made.

The snow has melted, except for large drifts, and spring work should begin soon.

WASHINGTON

AGRICULTURAL EXPERIMENT STATION, PULLMAN (Wheat and Flax Improvement, O. A. Vogel) (Mar. 29)

Winter wheat in the Palouse area, in general, looks the best for this time of year that it has in any of the ten previous springs of the writer's experience. Stands, color, and growth are unusually good in most fields. As a result of a mild winter, all but the very late seedings are unusually rank for this time of year. Apparently the vigorous growth is largely due to the abundant available nitrogen resulting from unusually favorable conditions for the decomposition of high carbon crop residues during the summer and fall of 1940.

The spring wheat varietal nurseries at Pullman, Pomeroy, and Walla Walla and the flax nursery at Pullman have been seeded. The seedings at Pullman were a week to ten days earlier than usual.

A new seed cleaner and a new nursery planter were built during the winter. Both machines are very much superior to the ones previously used. The planter is of the 1- or 3-row type and has many improvements over the one described in the Jour. Amer. Soc. Agron. 25: 426-428. 1933. The frame work was made from welded light-weight steel conduit tubing. The seeding cup is made so that the sizes of the openings can be adjusted by merely turning a thumb nut, and, therefore, only one seeding cup is needed for seeding of such crops as flax, wheat, oats, and barley. A direct v-belt drive was substituted for the chain and gear combination of the previous planter. On a level, well-prepared seedbed, one man can handle the 3-row planter without a second one to pull it, as was the case with the old planter.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Apr. 1)

The fall of 1940 was especially favorable for the seeding and early growth of winter wheat. Precipitation since September has been uniformly distributed during the seven months, with a total of 13.64 inches. The coldest part of the winter occurred during the Thanksgiving week, with a low of -11° on November 24. On four days in January and three days in February temperatures ranged from 1° to 7° below zero. As a result of this rather mild winter, prospects for winter wheat at this time are favorable.

Spring broke about the middle of March, with considerable wind drying the ground out rather rapidly. A heavy snowstorm on March 23, containing nearly one inch of moisture, provided for excellent seedbeds. The small grain nursery was seeded on March 31 and April 1. A rainstorm began immediately after the nursery was seeded. Seeding of the plots and the outlying nurseries will follow as soon as weather permits. The precipitation in January, February, and March was 1.28, 2.07, and 2.04 inches, respectively. The mean temperatures were within one degree of the normal for these months.

The writer recently returned from attending the winter quarter session at the University of Minnesota.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Mar. 29)

There was no rain in this section between March 4 and 28. Consequently, the mud dried until the soil surface was so hard that only heavy implements could break the crust. Last night a 0.64 inch rain fell which will encourage rusts and soften the soil.

As a result of prolonged soil saturation during the winter considerable grain on heavier soils in this area was so unpromising that it has been disked up. Very little of this had been killed, but color and tillering were very poor. Some of this land has been replanted to barley, but much of it will be devoted to milo and beans. Annual and perennial weeds are receiving less competition from grain than usual.

Based on plant vigor and tillering at this stage the experimental cereals probably will have lower yields, somewhat shorter plants, and about 5 days earlier maturities than average. Genetic classifications, heading and disease notes, and hybridization work are now in progress. Many good differentiating disease notes are being recorded.

As reported early in March, crown and stem rusts of oats, and leaf and stem rusts of wheat overwintered on volunteer plants sprouting in September or October as a result of irrigation. Some such plants escaped fall infection--others did not. Those escaping, though sometimes only a few feet removed from the infection center, had little or no rust until after the rains ceased on March 4. The build-up on fall-infected plants was relatively heavy, however. This was true for all of the rusts, of which generally only a single type overwintered on a plant. The fall-infected plants are now as severely damaged by all four rusts as any of the varieties were at the height of the severe epidemic last May. Some of Sando's Agropyron hybrids which were only slightly damaged last May, but which carried an infection through the winter, are very severely damaged now. Other perennial lines which were free from rust in 1940 are still rust-free. Despite such heavy localized attacks, experimental material which is several hundred feet or more distant from infection centers shows only a very occasional pustule at this date. Crown rust inoculum is most abundant and infections of this rust are found most easily. There was considerable wind during March and heavy dews most mornings. Temperatures, especially maximum temperatures, were above average. Consequently the very heavy localized attacks and relatively slow spread of rusts is puzzling. Reports of a threatening epidemic have been received from only one section of the State--Imperial Valley.

Barley scald is very severe, defoliation ranging from zero to 80 percent. Classification of inheritance material is consequently quite positive. The presence of net blotch is somewhat troublesome since both organisms sometimes attack the same plants. Estimates of damage from net blotch range to 40 percent. Barley stripe has been rare in recent years, but some is present this year. Septoria leaf spot on wheat is unusually abundant, estimates of leaf areas involved ranging up to 55 percent.

The hessian fly nursery conducted in cooperation with the Bureau of Entomology and Plant Quarantine in the Montezuma Hills was not planted until early February this year, but excellent stands were obtained. Emergence of fly from old stubble was good early in March, and the current rain will encourage further emergence. Final check of lines of Dawson x Poso^{0}, to be composited and released as Poso 41; and an inheritance study involving Dixon x Marquillo are the principal features of this project this year.

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Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 April 25, 1941 No. 5

Personnel (Apr. 11 - 25) and Field Station (Apr. 1 - 15)

PERSONNEL ITEMS

Mr. L. W. Kephart left Washington on April 12 for a one month's trip through Florida, Georgia, Mississippi, Louisiana, Texas, and Alabama, to confer with agriculture authorities at agricultural experiment stations and to inspect weed control experiments.

Dr. L. F. Randolph arrived in Washington April 15 to confer with Department officials regarding the corn improvement program.

RECENT PUBLICATIONS

Ralph A. Blanchard, John H. Bigger, and Ralph O. Snelling. Resistance of Corn Strains to the Corn Ear Worm. Amer. Soc. Agron. Jour. 33(4): 344-350. April 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases, the Illinois Natural History Survey, and the Illinois Agricultural Experiment Station, Urbana, Ill.)

Donald H. Bowman. Seed Corn Treatment Not of Great Benefit. Ohio Agr. Expt. Sta. Weekly Press Bul. 26(7): 1. April 17, 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

J. C. Brinsmade, Jr. Spring Wheat Varieties at the Mandan Station. N. Dak. Agr. Expt. Sta. Bimo. Bul. 3(4): 21-23. March 1941. (Cooperative investigations between the North Dakota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

P. E. Hoppe. Relative Prevalence and Geographic Distribution of Various Ear Rot Fungi in the 1940 Corn Crop. U. S. Dept. Agr. Plant Dis. Rptr. 25(6): 148-152, 1 fig. April 1, 1941. (Survey conducted by the Grain and Seed Division, Agricultural Marketing Service, U. S. Department of Agriculture, the Wisconsin Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture.)

L. S. Mayer. 1940 Corn Performance Tests, Tennessee. U. S. Dept. Agr. Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 11 pp. [April 1941.] [Mimeographed.] (Contribution from the Department of Agronomy, Tennessee Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases.)

Ralph O. Snelling and Ralph A. Blanchard, Compilers. Results of the Cooperative Uniform Regional Tests of Resistance of Corn to Insect Pests, 1940. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 29 pp. April 8, 1941. (Contribution from the Division of Cereal Crops and Diseases, Bureau of Plant Industry, Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, in cooperation with the State Agricultural Experiment Station.)

D. C. Tingey, R. W. Woodward, and T. R. Stanton. Uton, a New High-Yielding White Oat Resistant to Loose and Covered Smuts. Utah Agr. Expt. Sta. Bul. 296, 15 pp., 1 fig. April 1941. (Contribution from the Agronomy Department, Utah Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases.)

E. C. Tullis. Diseases of Rice. U. S. Dept. Agr. Farmers' Bul. 1854, 17 pp., 14 figs. October 1, 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, and Texas Agricultural Experiment Stations.)

R. O. Weibel and K. S. Quisenberry. Field Versus Controlled Freezing as a Measure of Cold Resistance of Winter Wheat Varieties. Amer. Soc. Agron. Jour. 33(4): 336-343. April 1941. (Contribution from the Division of Cereal Crops and Diseases and the Department of Agronomy, Nebraska Agriculture Experiment Station, cooperating.)

[C. M. Woodworth and O. E. Bolin] 1940 Experimental Hybrid Corn Trials in Illinois. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 13 pp., March 1941. [Mimeographed at Urbana, Ill.] (Contribution from the Department of Agronomy, Illinois Agricultural Experiment Station, the Division of Cereal Crops and Diseases, Bureau of Plant Industry, in cooperation with the Illinois Natural History Survey and the Bureau of Entomology and Plant Quarantine.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (Apr. 19)

The weather during the winter in general has been milder than normal. No extremely low temperatures were recorded, the lowest being -20° on February 19. Two severe storms occurred during the winter, one on November 11, 1940, and the other on March 15 and 16, 1941. Precipitation for each of the months, September to March, inclusive, was below normal, except for November, when 5.15 inches was recorded. The normal for November is 1.27. The total precipitation for these months was 10.6 inches, while the normal was 10.7 inches. This has provided plenty of moisture for the starting of spring crops.

The weather during the first part of April has been wet and cloudy. Very little seeding of spring grains has been reported in Minnesota, and the ground is still too wet to work.

Winter wheat, although making an excellent growth last fall, has apparently been severely injured. The fields and nurseries are patchy probably due to smothering. In the nursery and plots at University Farm, there is 80 to 90 percent winter injury. In the Waseca area, Mr. Hodgson reports at least 50 percent winter injury. This, again, is patchy killing in the fields.

There is considerable corn standing in fields to be harvested which was not harvested last fall or winter.

All planting plans and seed lots are prepared and seeding will begin as soon as the land can be worked.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Apr. 10)

Weather conditions during the first 10 days of April have been favorable for the growth of small grains. Precipitation totalling 0.90 inch was received in five showers. Temperatures have been about normal, although minimum temperatures have been slightly below normal. Heavy dews or rain have occurred nearly every day.

Small grains have made rapid growth with the earlier types nearly ready to head. A few heads have emerged in fall-sown barley and the spring-type barleys which survived the winter, are heading. Leaf rust of wheat is spreading slowly, although the cool nights have not been favorable for spread of rust. No other rust has been found to date.

The writer made a trip to College Station April 3. On the return trip both crown and stem rusts of oats were found at Temple, Tex., at the southern tip of the small grain-growing area of central Texas. Crown rust was abundant with evidence of having overwintered in that section. Only a few isolated pustules of stem rust were found. Leaf rust of wheat was present in moderate amounts but no stem rust of wheat could be found.

(April 20)

Weather conditions have not been favorable for growth of crops during the past ten days. Precipitation occurred on 7 of the 10 days with a total of 1.86 inches thus far this month. Temperatures have been approximately normal.

In spite of the seemingly favorable conditions for spread of rust, leaf rust of wheat has made very slow progress and crown rust of oats, found on April 11, has spread very little. Spores of stem rust of wheat have been caught on exposed slides on several days but the disease has not appeared on the station. A short survey trip in the Fort Worth-Dallas area failed to show any general infection of stem rust. Six isolated pustules were found in three fields just north of Dallas indicating that the spores coming in on the wind are becoming established. Further evidence of overwintering of crown rust near Dallas, Tex., was found on this trip.

Grain is now heading in this area. Much of it is extremely short, thin on the ground, and yellow in color from excessive rains. Early varieties of fall-sown oats and wheat are heading in the experimental plantings and most fall-sown barley is heading.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Apr. 23)

Thus far the spring of 1941 in most of Kansas has been more nearly normal than any spring in recent years. Except for a brief cold wave and heavy snow in the western third of the State on April 20, temperatures have been moderate and the weather mild and springlike. Rainfall has been well distributed and near or slightly above normal.

Under these conditions winter wheat has made a remarkable growth and for the first time in several years the plants are deeply rooted in nearly all parts of the State. The only area of severe wind damage is in the extreme southwestern part of the State. The freeze of April 20 did little damage except in the northwestern part. There are small areas in north-central and northeastern Kansas where winterkilling was severe and much wheatland has been plowed and sown to oats. The total acreage of these damaged areas appears very small in view of the vast acreage of excellent wheat in the State as a whole. Top growth of wheat is about normal in most

parts, except for some short wheat in southcentral counties and some excess top development in the river valleys of northern Kansas.

Leaf rust is widely distributed in the State, collections having been made in western as well as central and eastern Kansas; nearly all infections so far observed are in the first or second generation and are on leaves near the ground indicating their origin from overwintered uredia. Artificial inoculations with leaf rust were started in the rust nursery at Manhattan on April 5 and excellent centers of infection have been established. No stem rust has been observed as yet and no inoculations will be started in the rust nursery for several weeks.

Powdery mildew is abundant on winter wheat in many parts of the State. In the vicinity of Manhattan the infection is the heaviest the writer ever has seen. Top growth in many fields is heavy and there is much lodging, especially in low spots. Mildew is so heavy in some places that severe yellowing of the plants and loss of leaves have resulted. Even on upland wheat in this locality mildew is unusually abundant on the lower leaf sheaths and leaves. In the rust nursery at Manhattan, mildew is so severe that it will be a serious hindrance to rust work. There are sharp differences in varietal response, however, and it is notable that many rust-resistant hybrid lines involving Hope wheat are nearly free from infection.

There also is a moderate amount of yellow mosaic in winter wheat in the rust nursery as well as some in commercial fields in northcentral Kansas. Septoria tritici also was fairly abundant early in the spring but now is being masked by mildew.

Greenhouse work for the year now is nearly completed. Physiologic race determinations on 130 collections of leaf rust have been completed and wheat plants grown to maturity are being harvested. Cultures of known physiologic races of leaf and stem rusts of wheat and crown and stem rusts of oats have been increased for field use and for storage over summer. The exposure of spore traps was started on April 11 and will be continued through May and June.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (Apr. 24)

The weather so far in April has been wet and cool, making field work difficult. Seeding of spring grains has been considerably delayed. The barley plots and certain sections of the spring nursery were not seeded until April 17, and some increase blocks are being sown now. Beating rains on April 18 and 19 caused some damage to plots and nursery. Emergence has been uniform and as yet no freezes have injured the young plants.

Winter wheat has made fairly good growth but both plots and nursery look very ragged at present. Those plants coming through the winter uninjured are growing rapidly and are starting to shoot. Injured plants are growing slowly, and of course there are many dead spots in the seedings. Killing now appears to have been worse than was first reported.

Leaf rust was observed on April 22. Mildew is abundant where growth is rank. This is especially true in some wheat sown September 15 for a pasture study.

A visit was made to western Nebraska during the first part of the month. At Alliance the winter nursery is in very good shape but the plots were discarded because of very heavy killing. At North Platte the nursery is badly killed and yields will mean very little, even if the weeds can be kept down. The plots are in better shape, but here again all tender varieties are severely injured.

In general, the wheat crop in the western counties is very good at present. Growth is heavy, possibly too heavy for the subsoil moisture present. In the entire southcentral part of Nebraska the crop is spotted to a failure. Many fields have been seeded to oats or barley.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Apr. 16)

Field work began earlier than usual this spring but has been delayed considerably by frequent interruptions from light showers and misty weather. Soil moisture conditions are ideal for grain already seeded.

Seeding is continuing between showers whenever possible. The seeding of the spring wheat nursery was started April 11. All of the uniform spring wheat nursery experiments have been seeded, except the uniform bunt nursery and part of the general nursery. Replicated field plots of spring wheat were seeded today, also part of the oat plots. Seeding in this district is progressing as fast as soil and weather conditions permit, a considerable acreage being already sown.

Winter wheat and rye have come through the winter with much better than average survival and are making some growth.

The precipitation for the first half of April was 1.41 inches, which is more than the normal total of 1.23 inches.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Apr. 19)

April 19 is about the average date for beginning field work at Fargo, but no field work has yet been possible in the heavy soil of this vicinity. Precipitation in April already has totalled nearly three inches, or 50 percent above the normal for the entire month. The ground is absorbing the frequent showers very readily but the subsoil is still rather dry. Field work can begin late next week if dry weather prevails, but there have been not more than two or three "drying days" so far this month.

At Langdon the country is still wetter than at Fargo, although it can dry more rapidly owing to lighter soil. Following the heavy snowfall in mid-March, two inches of rain fell the second week in April, and more has been recorded since. Coulees in that very gently rolling country have expanded to lakes a mile wide and are flooding much land that has not been thoroughly wet for many years. The northeast section of the State is so wet that it is possible the decline in the water level of Devil's Lake may be checked for a few months, at least. There is no prospect of field work at Langdon before early May. Roads are in bad shape.

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal and Grass Footrots, Roderick Sprague) (Apr. 14)

Spring has arrived in Mandan and pastures are already beginning to show new growth. Light but prolonged rains have kept the fields wet and seeding will be delayed in some localities.

A field trip was made on March 29 with A. D. Stoesz, L. C. Newell, and E. Conard to examine Soil Conservation Service seedings at Albion, Nebr., for grass rootrots. Material obtained on this trip and from Dr. Newell's plots at Lincoln, Nebr., on the station farms was plated out to determine the species of rootrot fungi associated with the diseased plants. The fungi obtained from Dr. Newell's brome seedings were the same as those obtained from them last fall, Pythium spp. were predominant in water agar cultures. There was evidence that the local adapted strains of brome in his plots were relatively free from the trouble, while both fall-seeded young plants and older

more-or-less established seedings of unadapted strains of brome were diseased. Pythium also was isolated at Lincoln from winter wheat and fron Bromus tectorum in waste land adjacent to the brome plots. The symptons on the smooth brome (Br. inermis) was a root-browning condition, the sane as noted in September, 1940. Dr. Newell also has experienced damping-off difficulties in the greenhouse with unadapted strains of brome similar to those encountered with Bouteloua gracilis, Andropogon hallii, and other grasses by several investigators at Mandan this past winter. A solution of Senesan sprinkled on the flats controlled this trouble in the greenhouse.

The grass seedings at the Nursery Division, Soil Conservation Service at Albion disclosed Pythium sp. in Andropogon furcatus and Panicun virgatun but not in brone, crested wheat or Elynus junceus, in plants seeded in May or in the fall of 1940. Helninthosporiun sativun was isolated from western wheatgrass (Agropyron smithii) but was not present in the other grasses at this early date. Many other fungi were present in the roots and crowns of these plants. The common ones at Albion and at various other points enroute to Mandan were the common pink Fusariun (F. scirpi var. acuminatun), the peach-buff Fusariun, (F. equiseti), Curvularia ranosa and C. spicifera. Winter-injured wheat which was very prevalent north of Lincoln did not appear to harbor any heavy infestation of parasitic fungi. There was considerable Helninthosporiun sativun in some fields of winter wheat in southern South Dakota but most of the fungi isolated from these injured plants were saprophytes or weak parasites.

Inoculation trials in the greenhouse which have just been completed indicate that F. equiseti, F. oxysporum, F. scirpi var. acuminatum and C. spicifera are scarcely parasitic even when added in large quantities to cereals and grasses. Under the same conditions local collections of F. graminearum and of F. culmorum from North Dakota and from Linn County, Oreg., virtually wiped out cereals and grasses, causing heavy pre-emergence blight. Wheat and barley were very susceptible to these fungi isolated from grasses, and oats was susceptible, while Elymus junceus, Agropyron cristatum, Bromus inermis, Oryzopsis hymenoides, and Bouteloua gracilis were over 90 percent killed before emergence at 50°-60° F.

The common saprophytic Fusaria cannot be completely disregarded until they have been tested in association with other fungi and under a wider range of temperatures. There is some evidence that the common pink Fusarium (F. scirpi var. acuminatum) is multi-racial and some isolations of it appear to be mildly parasitic. F. sporotrichoides, which is not uncommon in southern South Dakota and Nebraska, also appears to be somewhat parasitic. Trials with the Pythium are in progress. The pathogenicity of some of them has been proved while others have not been parasitic. The material obtained from Lincoln last fall caused some pre-emergence blight and definite root injury.

At this time the most important rootrot fungi in the Northern Great Plains appear to be Helminthosporium sativum and Pythium spp. On the whole, the problem is not so simple as this but, in general, most of the danage appears to be due to these fungi.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (Apr. 17)

Winter wheats in most sections in Montana began growth during the last half of March. Winter temperatures have been very favorable but in some sections in the central and northern part of the State moisture has been limited.

At the Bozeman Station and in the Gallatin Valley, good spring stands of winter wheat are in evidence with very little, if any, winterkilling. Excellent spring stands with very little winterkilling were observed at the Judith Basin Branch Station and in fields all along the route from Bozeman to Moccasin on April 8 and 9. Reports from the North Montana Branch Station at Havre and vicinity indicate that spring growth is somewhat slower and not far enough along to determine the degree of winterkilling.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (Apr. 12)

It has been raining again. The total since March 29 has been 5.17 inches. On many farms barley is a complete failure. The making of a few hybrids has been attempted between downpours, and there is some satisfaction in the fact that the crop prospects at Davis are better than those of many farmers, but so much rain in a normally dry country is very disturbing. The total precipitation at Davis is now 28.87 inches, which is more than in any previous season since cooperative experiments were begun in 1922, and quite different from the seasonal total of only 6.67 inches in 1938.

Wheat and oats, which are minor crops in the immediate vicinity, have endured the wet winter much better than has barley. In Yolo and Solano Counties it appears that 40 percent of the barley acreage was planted late from March 10 to 28, and much of this represented replanting. Late barley is always uncertain, but it looks more promising than other barley now. Weeds, particularly wild oats, mustard, and tar-weed, promise to make the grain crop a very foul one.

A very severe epidemic of crown rust has developed. Wild oat plants along the railroads and highways are nearly all defoliated and plants in the fields probably soon will be likewise. Good use of this epidemic will be made in our breeding program. Other rusts have made very little progress locally, although stem rust on wheat is reported as moderately severe in Imperial Valley. Net blotch on barley is unusually severe. Two fields of Atlas barley observed yesterday near Dixon had 80 percent of their leaf surface destroyed by this disease.

Local differences in elevation in the experimental fields are becoming increasingly conspicuous. Consequently, yield differences between replications are going to be high. Heading is progressing slowly owing to the cool weather. Lodging promises to be severe despite thin stands and below average height.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 May 10, 1941 No. 6

Personnel (Apr. 26 - May 10) and Field Station (Apr. 16 - 30)

PERSONNEL ITEMS

Dr. B. B. Bayles left Washington May 7 on a trip through North Carolina, South Carolina, Georgia, Tennessee, and Virginia to confer with officials of State agricultural experiment stations and others; to inspect cereal experiments, especially wheat and barley; to study varieties and hybrids in breeding nurseries; and to observe wheat conditions in general.

Mr. L. W. Kephart returned to Washington on May 9 from a trip to the Southeastern States and reports that the weed problems in the South are changing considerably with the increasing shift from cotton to a more diversified type of agriculture. Except for crabgrass proper cultivation of cotton takes care of the weeds, even of Johnson grass and nutgrass. With the increasing acreages of cereals and forage, weeds common in the North are now appearing in the South and in addition a number of plants not known in the North are becoming exceedingly troublesome. In South Carolina blessed thistle (Cnicus benedictus), a plant previously rare, is beginning to cause serious difficulty in barley and oats, especially where these crops are being grown for seed. In south Georgia Acanthospermum hispidum, a spiny-fruited native of South America that has caused much trouble in Australia and South Africa, has suddenly appeared. In south Louisiana a semi-aquatic plant belonging to the Amaranth group but known as "alligator grass" (Alternanthera philoxeroides) has invaded fields of cane, corn, and potatoes, and is extremely difficult to destroy. Soil conservationists are watching several new plants that may be good soil covers but also troublesome weeds.

Very little experimental work on control is under way with familiar weeds, such as Johnson grass, Bermuda grass, and bitterweed.

A most interesting visit was paid to the water hyacinth control operations along the Intercoastal Canal in Louisiana under the guidance of Army Engineers. The War Department has abandoned the use of chemical sprays and now employs large floating elevators and crushers that pull the vegetation out of the water and crush it or throw it on the bank. Incidentally, they dredge and crush thousands of water moccasins and other reptiles in the process. Despite the large scale of the operations there seems to be no hope of eradicating the water hyacinth. The best that can be done is to keep the more important waterways open to navigation.

RECENT PUBLICATIONS

W. L. Gordon and Roderick Sprague. Species of Fusarium Associated with Rootrots of the Gramineae in the Northern Great Plains. U. S. Dept. Agr., Bur. Plant Dis. Rptr. 25(7): 168-180. April 15, 1941. (Cooperative investigations between the Divisions of Cereal Crops and Diseases, Forage Crops and Diseases, and Dry Land Agriculture, Bureau of Plant Industry; Division of Nurseries, Soil Conservation Service; the North Dakota Agricultural Experiment Station; and the Division of Botany and Plant Pathology, Dominion Laboratory of Plant Pathology, Winnipeg, Manitoba, Canada.)

C. S. Holton and G. W. Fischer. Hybridization between Ustilago avenae and U. perennans. Jour. Agr. Res. 62(2): 121-128. January 15, 1941. (G-1193) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Division of Forage Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Washington Agricultural Experiment Station.)

A. E. Longley. Chromosome Morphology in Maize and Its Relatives. Bot. Rev. 7(5): 263-289, figs. 1-3. May 1941.

E. S. McFadden. Early-Spring Incidence of Rusts of Wheat and Oats in Texas. U. S. Dept. Agr., Bur. Plant Dis. Rptr. 25(7): 180-181. April 15, 1941. (Cooperative investigations between the Texas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

H. L. Shands, Allan D. Dickson, James G. Dickson, and B. A. Burkhart. The Influence of Temperature, Moisture, and Growth Time on the Malting Quality of Four Barley Varieties. Cereal Chem. 18(3): 379-394, fig. 1. May 1941. (Based on cooperative investigations between the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

F. L. Timmons. Watch Out for Bindweed Seedlings. Kans. Farmer 78(8): 3, 14. April 19, 1941. (Cooperative investigations between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

A P P O I N T M E N T S

We are advised that requests for appointments or changes in appointments must be in the Bureau personnel office 7 to 10 days in advance of the effective date. If questionnaires with all necessary details are in our Division one day earlier than noted above, we will write up the requests promptly and put them through. Particular care should be taken with outlining the duties. Some questionnaires are received describing the duties as "assisting with wheat experiments", which is insufficient. Duties must be given in some detail.

In this connection, where increases in wage rates are requested, the Bureau requires that there be a change in duties or necessity for meeting prevailing wage scales. If the former, we must state the man's present duties in brief detail and the duties he will perform at the increased wage rate.

H. S. Smith
Junior Administrative Assistant

COMPTROLLER GENERAL OF THE UNITED STATES

Washington

A-4545
A-14235

May 1, 1941

USE OF GOVERNMENT TRANSPORTATION REQUESTS

To the Heads of Departments and Independent Establishments:

The attention of officials and employees issuing and those using U. S. Government transporation requests is directed to the fact that certain railroads in Trunk Line and Central Passenger Association territory, i.e., east of Chicago and St. Louis and North of Washington (except the New England States), offer one-way and round-trip transportation at reduced rates if upper-berth sleeper service is used. If such class of transportation is ordered the transportation request for the rail fare should specify "Upper-berth sleeper to be used".

Attention is also invited to the instructions in paragraph 2, General Instructions to Carriers, on reverse of Standard Form No. 1030, "Government Request for Transportation", as follows:

> "Where exceptional conditions require the issuance of transportation differing from that specified in the request, the traveler should note in the following space the actual transportation furnished, the reason for the difference, and sign the statement:"

Also, paragraph 3, Notice of Issue of Ticket, on reverse of Standard Form No. 1031, memorandum copy of the transportation request directs—

> "Indicate below the actual transportation furnished where same varies from that requested. (See Instruction 2 on reverse of original request.)"

Accordingly, where service differing from that specified in the request is used, it is incumbent upon all officials and employees to report the required information as instructed, or by separate report if necessary, so that payments may be made for services actually used by the traveler.

LINDSAY C. WARREN

Comptroller General
of the United States.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Office of Accounts.

May 8, 1941.

Memorandum for Head Clerks.

We wish to again call attention to the necessity of reporting dates, times of arrivals and departures from points, and class of service furnished, i.e., whether sleeper, parlor car seat or coach, when sending in unused portions of tickets or reporting deviations from class of service called for in ticket.

A sample memorandum is as follows:

"I am trasnmitting herewith unused coupons from Madison, Wis. to Washington, D.C., of round-trip, first-class ticket between Washington, D.C., and St. Paul, Minn., No. 16159 Form 3X, which was obtained in Washington on May 6, 1941, by Mr. John Doe, in exchange for T.R. No. A-1,456,297.

Travel was performed on the ticket as follows:

Left	Arrived	Class
Washington, D.C. 3:45 PM, 5/6	St. Paul, Minn. 9 PM,5/7	L.B.& Pullman seat.
St. Paul 3 PM, 5/8	Madison, Wis. 10 PM, 5/8	Coach.

(Ticket not used from Madison to Washington.)"

In writing to the transportation companies it is necessary that the above detailed information be given to enable them to verify state- by reference to conductor's ticket collections and records. This can not be done by them unless they are able to determine the exact trains on which employees traveled.

Your cooperation will reduce the amount of correspondence and expedite settlement of transportation requests, and will be greatly appreciated.

Very truly yours,

W. P. Cox
Assistant in Charge of Accounts.

S.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (May 8)

The maximum temperature in April was 85°, the minimum 48°, and the mean 70°. The total precipitation was 4.64 inches and occurred mostly in the last ten days of the month. The 31-year average for April is 3.71 inches.

Good weather in the early part of the month was favorable for seeding operations and most of the Station plots had been sown before heavy rains prevented field work. The soil was getting rather dry, however, so the rains were timely. The precipitation was accompanied by low temperatures which caused slow germination of the rice. Present indications are, however, that most stands will be good.

According to the "Estimate of the Rice Crop for the Year 1940" compiled by the Rice Millers' Association, New Orleans, La., the commercial acreage and yield of the three rice varieties released by the Rice Experiment Station in Louisiana, Texas, and Arkansas, were:

Variety	Total for the three States			Percentage of crop in three States	Percentage of crop in United States
	Acres	Barrels	Bushels		
Fortuna	16,367	185,016	666,058	1.59	1.32
Nira	37,090	520,370	1,873,332	4.48	3.72
Rexoro	138,574	1,764,659	6,352,772	15.20	12.60
Total	192,031	2,470,045	8,892,162	21.27	17.64

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL, (Wheat Breeding, E. R. Ausemus) (May 1)

Very little field work was done until April 26, because of cool, wet weather. Since then farm work has progressed rapidly with most of the small grains seeded.

The spring wheat nursery was sown at Waseca on April 26, and the Agronomy nursery and plots at University Farm on April 27. Oats and barley are now being sown. The spring wheat rust nursery will not be seeded until next week.

The taking of weather records at the plots at University Farm was begun on April 13. Since then the precipitation has been 2.18 inches. The last frost in April was on the 24th, with a temperature of 30°. The maximum temperature was 79° recorded on April 30.

Leaf rust was found in the winter wheat at Waseca on April 26 and at University Farm on April 29.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Apr. 30)

Conditions during April were unfavorable for small grains because of wet, cloudy weather. The total precipitation of 4.59 inches was only 0.91 inch above normal, but this was received in small showers that made field work impossible. Precipitation was recorded on 20 days and rain or heavy dew on all but two days of the month. Temperatures were approximately normal but with less than normal fluctuation. Maximum temperature was 86° and minimum was 41°.

It would seem that the above conditions would be ideal for spread of rust but such has not been the case. Leaf rust of wheat has spread slowly. Crown rust of oats was found on April 11, but until the last few days only slight increase in the disease has been noted. Stem rust of wheat was found near Dallas, Tex., on April 21 and on the Station on April 25. In the last two days stem rust has appeared in all the plantings and is so well distributed that rapid increase may be expected from now on.

Continued showers and cloudy weather have held growth of grain in check. In spite of these conditions grain is heading somewhat ahead of normal. All fall-sown oats are heading, barley is nearly fully headed, and heading is general in the winter wheat. Greenbugs are damaging the spring-sown oat plantings seriously both on the Station and on farms. Considerable acreages will have to be abandoned.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 1)

Nine very gentle showers during April totaled 3.66 inches (1.30 inches above normal), making this the fourth wettest April since 1913. Precipitation for the past four months totaled 9.40 inches (4.14 inches above normal) of which little if any was lost as runoff.

The maximum, minimum, and average temperatures during April were 67°, 48°, and 57°, respectively.

Wheat, barley, oats, rye, flax, and safflower, made rapid growth in spite of moderately cool April temperatures. Wheat now stands about 20 to 30 inches high and rye is four feet or more in height. Some lodging has been evident in some varieties of wheat and rye after most of the recent rains. The rank growth has, of course, left them in such a condition that they may be severely damaged by subsequent drought and heat. Rye started heading April 21 and at present 22 of the 30 varieties in the nursery are first headed.

Early Blackhull awns and the awns of a few early fall-sown barley varieties are showing.

A trace of leaf rust was recorded on April 28. No stem rust pustules have been noted to date.

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (May 1)

The rainfall for April was 4.61 inches and is the fourth highest on record at the Hays station. With rainfall considerably in excess of normal since January 1 wheat has made a vigorous growth on fallowed land. As a consequence, there is much danger of lodging and wet weather diseases. Where the stands are thick the plants are spindling and already inclined to lodge after every shower, The plants still have a healthy green color.

Probably the best yields will come from the more poorly-prepared seedbeds where the stands are thin and where late seeding retarded early plant growth. The prospects are favorable also in fields heavily grazed throughout the entire winter and early spring season.

Oats and barley are making satisfactory growth.

It has been difficult to prepare the land for row crops because of excessive rainfall.

All cherry trees in this section were completely killed by the early November freeze. Heavy losses occurred among the Chinese elms. Other shade trees generally survived.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 1)

The month of April was unusually damp, misty, and cloudy. The weather records show measurable precipitation on 18 days. Only two days, the 19th and 23d, were recorded as clear. The total precipitation was 2.10 inches, which is well above the normal of 1.26 inches.

Field work began early but was frequently interrupted by rain. Much of the seeding was done between showers or during misty weather. The main seeding of small grains at the Substation and in the vicinity is completed. The uniform spring wheat nurseries are up with the plants about two inches high and field plots of spring wheat, oats, and barley, and the bunt nursery just emerging. There should be a good infection of bunt with the cool, moist soil from seeding to emergence.

Stand counts now being taken on the winter wheat show a winter survival much better than the average.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (May 2)

Precipitation was recorded at Fargo on 28 days in April. The total rainfall was about 3.5 inches, 50 percent above normal, mostly in the form of light showers. Surface moisture conditions are satisfactory, and uniform emergence should be assured but subsoil moisture is still deficient in this section of the State.

Moisture at Langdon was more plentiful than at Fargo, and that whole section of the State was well saturated, during the first half of April. Field work at Langdon began Monday, April 28, with the seeding of the wheat varietal plots. Nursery seeding will not begin until May 5. Nursery seeding at Fargo could not begin until April 29 because of continued wet weather. Wheat varietal plots at Fargo were sown yesterday and today, ten days later than average.

Dr. Roderick Sprague planted his root rot nursery at Fargo on April 29. Yield nursery planting at Fargo is complete, with hybrid material awaiting planting until after the trip to Langdon about May 5.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (May 2)

In general, prospects remain excellent for a bumper crop of winter wheat in eastern Oregon, although rain in late May or early June will be necessary for proper filling of the grain. Because of a mild winter and early fall seeding, winter grain tillered excessively and is beginning to show the effects of soil nitrate depletion. Plots to which a nitrate fertilizer was applied are unusually outstanding. In the drier sections, more rainfall will be necessary to prevent "firing" of the crop. The hay strips around certain fields in Morrow County already show the effects of a moisture shortage, but in most areas conditions continue promising.

Spring grains thus far have not made normal growth, but if present weather conditions continue they should make a fair yield. The unthrifty appearance of grasses in both rows and solid stands indicates a shortage of plant food. Stands of flax are very irregular, primarily because of an 0.58-inch rain and hail which fell in 30 minutes and formed a crust through which the emerging plants could not penetrate. Other spring cereals were sown earlier and had emerged before the crust formed.

Temperatures since January 1 have been mild, but precipitation was not up to normal. Rainfall for the months of January, February, March, and April was 1.21, 0.99, 0.93, and 1.23 inches, respectively, compared with 1929-1940 averages of 1.82, 1.55, 1.74, and 1.40 inches for the same months. However, subsoil moisture conditions are better than they have been for several years.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (May 1)

The first half of April was relatively warm with intermittent showers. It was possible to do some seeding at intervals, though very little commercial planting was accomplished. On April 16 a cold wave from the north brought considerable snow and temperatures dropped to as low as 16° F. Very cold weather prevailed for several days but exceptionally good growing weather has been the rule during the last week of the month. All small grains were seeded by April 23, and have already emerged. The nursery which was seeded on March 31 did not emerge for nearly three weeks. Some Fusarium root rot has been observed, but with no serious killing to date. Winter wheat appears to be in excellent condition, especially fields that emerged early last fall.

Farmers in northern Utah have been considerably delayed in the seeding of spring crops, owing to the excessive moisture and cold weather. Many fields are still too wet to be worked. It is reported that the extremely low temperatures did tremendous damage to apricots and cherries in the fruit areas of Utah.

The precipitation for April was 2.60 inches, the mean temperature 45.1°, and evaporation 3.40 inches.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 May 25, 1941 No. 7

Personnel (May 11 - 25) and Field Station (May 1 - 15)

PERSONNEL ITEMS

Dr. B. B. Bayles will leave Washington May 26 for West Virginia, Kentucky, Missouri, Oklahoma, Texas, Kansas, Nebraska, Illinois, Indiana, Ohio, Michigan, Wisconsin, and Iowa to visit field stations, confer with officials of State agricultural experiment stations and others, and to inspect cereal experiments, especially wheat. Dr. Bayles will study varieties and hybrids in breeding nurseries and observe wheat conditions in general.

Dr. Wayne M. Bever arrived in Washington May 19 to confer with Department officials regarding investigations on loose smut of wheat.

Mr. Robert C. Eckhardt will transfer about June 1 from Ames, Iowa, where he has been assisting Dr. G. F. Sprague in the Iowa corn breeding program for the past five years, to Knoxville, Tenn. Mr. Eckhardt will take over the Tennessee corn improvement program conducted in cooperation with the Tennessee Agricultural Experiment Station, which Mr. L. S. Mayer has been conducting.

Mr. C. C. Fifield left May 17 to attend the meetings of the American Association of Cereal Chemists to be held on May 19 to 23 at Omaha, Nebr.

Mr. J. H. Kempton left May 15 on a four months' trip to participate in the making of an agricultural survey of Mexico, Honduras, Costa Rica, Panama, and Guatemala.

Miss Mary L. Martini left Washington on May 23 on her annual trip in the barley areas of Idaho and Utah to take notes and compile data on cooperative experiments.

Mr. L. S. Mayer arrived May 10 in Washington from Knoxville, Tenn., where he has had charge of the Tennessee corn improvement program for the past 19 years. Mr. Mayer will be stationed at Arlington Experiment Farm, Va., and will assist Dr. M. T. Jenkins in conducting the corn breeding experiments formerly located there but now in the process of transferring to the new Plant Industry Field Station at Beltsville, Md.

Mr. Otto Rauchschwalbe left Washington on May 21 for a trip through Texas, Oklahoma, Kansas, Nebraska, and Iowa to study cooperative cereal experiments and confer with experiment station workers regarding the design of experiments and statistical interpretation.

Dr. S. C. Salmon left Washington May 25 on a trip through Iowa, Nebraska, Kansas, Nevada, California, Oregon, Washington, Idaho, and Minnesota to inspect experimental work and to confer with Department and State officials regarding the weed control and wheat improvement experiments.

Mr. T. R. Stanton left Washington on May 18 for a trip through the oat-producing States of the South. He will make stops in Georgia, North Carolina, South Carolina, Virginia, and Tennessee to inspect cooperative and other experiments with oats, to collect plant and disease specimens, and to confer with officials regarding the value of new varieties.

RECENT PUBLICATIONS

Howard W. Johnson, H. A. Rodenhiser, and C. L. Lefebvre. A Buff Smut of Fall Panicum. Jour. Agr. Res. 61(12): 865-875, figs. 1-7. December 15, 1940. (G-1188)

L. W. Kephart. Adrian John Pieters. Chronica Botanica 6(9): 213. January 27, 1941.

Warren H. Leonard, J. F. Brandon, and J. J. Curtis. Corn Production in Colorado. Colo. Agr. Expt. Sta. Bul. 463, 38 pp., 7 figs. December 1940. (Cooperative investigations between the Colorado Agricultural Experiment Station, the Division of Dry-Land Agriculture, and the Division of Cereal Crops and Diseases.)

H. E. Myers, R. W. Jugenheimer, and E. G. Heyne. Vitamin B_1 (Thiamin Chloride) and the Yield of Corn and Sorghum Under Field Conditions. (Note) Amer. Soc. Agron. Jour. 33(5): 474-476. May 1941. (Joint contribution from the Division of Cereal Crops and Diseases and the Kansas Agricultural Experiment Station.)

K. S. Quisenberry. Small Grain Varietal Trials in Nebraska. In Ann. Rpt. Nebraska State Bd. Agr. 1940: 75-87, illus. 1940. (Nebr. Crop Growers' Ann. Rpt.)

ANNUAL REPORT OF PUBLICATIONS AND MANUSCRIPTS

DIVISION OF CEREAL CROPS AND DISEASES

CALENDAR YEAR 1940

In the calendar year 1940, 144 articles, papers, and abstracts were published in the various series of Department publications, in publications of cooperating State agricultural experiment stations, in private journals, or as mimeographed unnumbered publications. In 1940, 151 manuscripts were submitted for publication. There remained unpublished on December 31, 1940, 36 manuscripts submitted in 1940, 13 submitted in 1939, and 5 submitted in 1938.

GENERAL OR MISCELLANEOUS

Christensen, J. J., and Rodenhiser, H. A. Physiologic Specialization and Genetics of the Smut Fungi. Bot. Rev. 6(8): 389-425. August 1940.

Curtis, J. J., Brandon, J. F., and Weihing, R. M. Foxtail Millet in Colorado. Colo. Agr. Expt. Sta. Bul. 461: 4-12. November 1940. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Colorado Agricultural Experiment Station.)

Hanson, E. W., and Christensen, J. J. Insects in Relation to Root Rot and Basal Stem Rot of Cereals. (Abs.) Phytopathology 30(1): 7-8. January 1940. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Minnesota Agricultural Experiment Station.)

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APPENDIX

Publications Received Too Late for Inclusion in 1939 Annual Report

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FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (May 16)

Weather conditions during the first half of May have been favorable for the growth of small grains. Precipitation totalling 0.24 inch has been received in five showers. Temperatures have been about normal.

Small grains are making a rapid growth. Rye is beginning to head. Leaf rust, although first found on April 30, does not seem to spread in the winter wheat.

The spring wheat rust nursery, planted about a week later than the regular rod-row nursery, has not emerged uniformly. Emergence is very irregular and all the seed apparently will not germinate until it rains.

Corn planting was begun at the Station on May 12.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (May 10)

Weather conditions continue unfavorable for growth of crops and have, for the most part, prevented field work. Precipitation was recorded on 6 of the 10 days and heavy dews recorded on the other days. The maximum temperature was 88° and the minimum 56°. Only two days were clear.

Owing to favorable temperature and moisture conditions, all rusts of grain are now making rapid progress in their spread. Stem rust of oats has not been found on the Station as yet but has been found in fields in this region. All other rusts are present in most fields. Crown rust of oats has reached epidemic proportions and may do damage to the later-maturing

oats. Leaf rust of wheat, although now gaining considerable headway, is too late to damage grain to any appreciable extent. Stem rust of wheat is potentially dangerous and may cause considerable injury if weather conditions continue favorable for its spread.

During the past week the writer visited the experimental nurseries at Greenville, Iowa Park, and Chillicothe. Light infection of all rusts was present in the experimental and field plantings at Greenville. The crop on farms is poor as a result of excessive precipitation. At Iowa Park and Chillicothe, the abundant rainfall has produced record crop prospects. Much more damage is being done by leaf rust of wheat than in the Denton area. Light infection of stem rust of wheat and oats was noted throughout the area, and rather heavy infection of crown rust of oats. The crop is nearly all planted and well along toward maturity so no great amount of damage to oats is expected. In the area to the south of Wichita Falls, there is the finest crop of wheat ever seen in that area. Nearly all is Early Blackhull and well along towards maturity.

(May 20)

During the past ten days weather conditions have been more favorable for growth of crops than any time this spring. Clear weather prevailed, except for two days, but the favorable weather was broken by another rain yesterday. Total precipitation for the period was 1.18 inches. The maximum temperature was 92° and the minimum 53°. Dews occurred on six days.

During the hot, windy weather of the past week, crops have matured fast. Barley is ripening and several varieties were harvested yesterday. Early varieties of fall oats are ripe, and early varieties of winter wheat are starting to ripen.

Stem rust of wheat and crown rust of oats have spread very rapidly during the past ten days. In commercial fields, the early and susceptible varieties of wheat, Fultz and Red May, are heavily infected with rust. As they are ripening now, the damage may not be serious. Late varieties, such as Mediterranean, will be seriously injured. Tenmarq and other Kanred type wheats remain free of rust even when located along side other varieties heavily infected with rust. Stem rust of oats has spread very slowly.

A field day held last Friday was attended by more than 300 farmers.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (May 15)

All except late varieties are first or fully headed. Tenmarq and Cheyenne were first headed on June 11 and 13, respectively.

Though rank growth continues and one variety is 60 inches high, little lodging has taken place as yet except after rains. Wheat is in excellent condition, though likely to suffer later from hot dry winds that frequently prevail at this season of the year. A 13.4 mile wind on May 14 was accompanied by a maximum temperature of 96°.

Leaf rust is developing rapidly and is becoming increasingly evident on all upper leaves. No stem rust has been noted to date.

Most winter barley varieties are headed, as are several of the earliest of the spring barley and spring oat varieties. First flax blossoms are showing.

Precipitation has been recorded on ten of the past fifteen days, 3.18 inches of rain having fallen to date in May (27-year average for the month of May is 3.52 inches). The total for 1941 is 12.58 inches. The average to June 1 is 8.78.

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (May 15)

After a long siege of wet weather, sunshine and higher temperatures have prevailed for a period of five days giving the farmers a chance to do certain types of soil tillage. In many fields the soil is so saturated with moisture that it is not possible to prepare a good seedbed for crops, such as sorghum, since the ground turns up slick and gummy and bakes quickly.

Wheat is growing very rapidly and for the last 15 days has averaged an inch a day growth in height. Early Blackhull is just beginning to head. The average height of the crop is now between 25 and 30 inches. Since the stands are heavy, the moisture requirement to keep the crop going is very great. At this time the portion of the crop still standing well is of good color and free from any diseases, except that there seems to be a slight evidence of leaf rust which has not yet reached the pustule stage. A spore trap is in operation to determine the movement of the stem rust spores. Several readings have shown some evidence of the spores in the air but no evidence has been found on the wheat plants to date.

Sorghum planting will begin as soon as field conditions will permit.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) (May 22)

During the last two weeks the weather has been warm, with strong winds on several days. While there have been some days with high humidity, almost no moisture was received from May 3 until today. As a result, winter wheat in both plots and nursery is showing signs of drought, especially where stands are thick. Early varieties of winter wheat started to head on May 18, but heading is not general as yet. Leaf rust has increased rather rapidly, although not so fast as in 1938. Mildew may still be found, but it has not increased a great deal. A heavy rain falling today will help the crop materially.

A rather serious infestation of hessian fly has developed in the southeastern part of the State. At Lincoln, the infested winter wheat plants can be found rather easily. In the spring wheat plots the infestation seems to be unusually heavy in all varieties except Kearney (Java). Entomologists report that the infestation is the heaviest since 1932.

Oats and barley in the nurseries are making good growth, and some early varieties of barley will be heading in a few days. Chinch bugs are very thick in all barley seedings. Growth in the oat plots is very uneven, with many light-colored areas evident, apparently due to lack of nitrogen. The barley varieties in plots are still small because of late seeding.

Reports from North Platte indicate that spring crops are in good shape, and winter wheat is making good growth. At Alliance the winter wheat nursery is becoming very rank while the spring seedings are developing rather slowly. Recent rains in western Nebraska have been of much benefit to crops, as there is no great amount of subsoil moisture in that area.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 15)

The weather has been variable during the first half of May, the temperatures ranging from about 28° to above 80°. There were a few hot, sunny days and several were cool, cloudy, or rainy. The first strong winds of the season occurred May 6 and 7. Slight damage was done at the Substation and more on some fields in this vicinity where emerged grain was bruised by the wind and drifting soil.

The total precipitation was slightly less than 1-1/2 inches, and somewhat more than the average for the period. Soil moisture conditions are excellent. Most cereal crops have emerged to good stand and are making a vigorous growth. Flax varieties seeded on May 5 emerged May 13.

The seed and land are being prepared for planting corn varieties within the next few days. Stand counts have been made on the winter nursery and field plot varieties.

CALIFORNIA

UNIVERSITY FARM, DAVIS (Cereal Agronomy, C. A. Suneson) (May 14)

Two rain storms occurred during the past month, adding 2.63 inches of precipitation to bring the seasonal total at Davis to 31.5 inches. Continued cool weather may result in an unusually late harvest. Irregular growth of experimental cereals, owing to excessive soil moisture and extremely weedy commercial grain fields, is general in California this season.

Ramona and Bunyip wheat have been completely defoliated by septoria in the central valleys this season. In many locations the infection is severe even on the glumes. Frost, during the third week in April, in a number of sections in the southern half of the State damaged the early varieties, Ramona wheat and Vaughn barley, at heading. Leaf rust is present in nearly all parts of the State and has recently shown a very marked increase at Davis, with readings of 85 percent for some varieties. Stem rust was very severe in Imperial Valley, with susceptible varieties rarely equal to Grade 5, owing to low test weight. In the Imperial Valley and in Arizona, a susceptible type reaction and a fairly high incidence of rust developed on Baart 38, White Federation 38, and Thatcher. Despite this, not even the densest and most severely lodged fields of "resistant" wheat will grade below No. 4 on weight and No. 1 and No. 2 will be more common. Stem rust has not yet appeared on "resistant" varieties in other parts of the State, although an epidemic now seems to be developing rapidly on susceptible varieties. Stripe rust has not been observed in California but is moderately severe in the Salt River Valley of Arizona.

Scald, net blotch, and spot blotch have all been unusually severe on barley, with susceptible varieties showing complete defoliation in many sections. Barley stripe occurs in significant amounts in some commercial fields this season.

The crown rust epidemic on oats has pretty well spent itself. Wild oats was, in some cases, completely killed by crown rust shortly after heading and some commercial fields very severely damaged. A severe stem rust epidemic is developing on oats now.

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Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 June 10, 1941 No. 8

Personnel (May 28 - June 10) and Field Station (May 16 - 31)

PERSONNEL ITEMS

Mr. T. R. Stanton returned to Washington on May 31 from a short trip into the Carolinas, Georgia, and Tennessee, in the interests of oat improvement. He reports that, owing to the dry weather, the earlier maturing varieties of fall-sown oats will make the best yields this year. However, on poor upland soils many of these varieties will be rather short for convenient harvesting.

Natural infection of crown rust was seen only at the Pee Dee Experiment Station at Florence, S. C., and that was limited to a small area in one plot. Attempts at several stations visited to develop artificially created infections were unsuccessful because of the severe drought.

Much interest was manifested in the numerous, new disease-resistant varieties and selections of oats that were being tested. Both Victorgrain and Fulgrain Strain 4, resistant to crown rust and smut and first distributed by the Coker Company in the fall of 1940, were looking fairly promising. However, some complaints regarding the short straw were heard in the Piedmont section of South Carolina. Although also rather short in the straw at a few stations, the new selections from the Lee x Victoria cross, with resistance to crown rust and smut, were attracting attention at Statesville, N. C., and Experiment, Ga. Letoria and Lelina, recently named strains of this cross, were being increased in large fields in North Carolina for distribution to farmers this fall. In Georgia, a sister selection, C.I. 3384, has been named Lega by Prof. R. P. Bledsoe and will be distributed to farmers this fall.

Some of the new disease-resistant selections from various red oat crosses furnished by this Division also are of promise. The new fall-sown varieties, Fulwin, Tennex, and Tenn. 092, are becoming popular among Tennessee farmers who claim they are hardier, more productive, and better adapted to late seeding than the old varieties. About 40,000 acres of the three varieties are being grown in Tennessee this season.

About 8,000 bushels of seed of a strain of the Lee-Victoria cross known as Coker-Stanton (C.I. 3855, Coker 40-5) will be placed on the market this year by the Coker's Pedigreed Seed Co., Hartsville, S. C.

Large-scale intensive oat-breeding is being conducted by that company under the supervision of Dr. Geo. J. Wilds. They are now breeding for resistance to stem rust in oats and for hardier strains that will survive better in the Piedmont section of the Carolinas and in Tennessee. The winter barley breeding project is being enlarged. Their winter wheat breeding program involved the use of Frondosa and Frontiera, rust-resistant wheats introduced from South America by the Department.

Dr. G. A. Wiebe returned on June 4 from Sacaton, Ariz., where he assisted in taking notes on and harvesting the large barley nursery. This consisted of the Division's entire collection of some 4,000 foreign and domestic barleys. All varieties were classified for several characters and samples of seed were taken at maturity for determinations of post-harvest germination.

RECENT PUBLICATION

C. S. Holton. Further Studies on the Oat Smuts, with Special Reference to Hybridization, Cytology, and Sexuality. Jour. Agr. Res. 62(4): 229-240, figs. 1-2. February 15, 1941. (G-1189) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

June 10, 1941.

PAY ROLLS

Please make certain that each payee's name is given exactly the same on every payroll. Do not give a name as John Doe on one payroll and as John W. Doe on another. The payroll name of a man under appointment must agree in every respect with the name under which he was appointed.

H. S. Smith
Junior Administrative Assistant.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (June 4)

The weather during May was characterized by lack of moisture and higher temperatures than normal prior to May 27. Only 0.7 inch of rain fell. During the last four days of the month, 2.4 inches was recorded at University Farm. This makes a total precipitation of 3.1 inches for the month as compared with a normal of 3.49 inches. The mean temperature for May was 64.1°, or 6.2° above normal. The maximum temperature was 89° recorded on May 26.

Small grains have made a very good growth despite the shortage of moisture during a part of the month. Winter wheat has made an excellent growth and is now heading.

Corn has emerged with good stands.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (June 1)

During the last 10 days of May, weather conditions were more favorable for small grains and for harvesting operations which now are under way. Total precipitation for the month was 2.60 inches, which is below normal, but rain was recorded on 13 days. The maximum temperature for the month was 92° and the lowest 53° F. The mean temperature for the month was 3.1° above normal.

During the past 10 days, small grain crops have matured rapidly. All fall-sown oats and barley in experimental plantings are cut, and much of the fall-sown grain on farms also is cut. Harvesting the early-maturing varieties of wheat is just starting. Susceptible varieties such as Red May, Fultz, and Mediterranean will produce low yields of shriveled grain due to stem rust injury. Tennarq and other Kanred type wheats have been resistant to rust until just recently, since it seems the races which attack these varieties have not been present until late in the season, and as a result such varieties are injured very little. Yields of fall-sown oats and barley are much below average, owing to excessive rainfall during the spring.

Visitors during the recent period included Mr. C. O. Johnston, Dr. K. S. Quisenberry, Dr. B. B. Bayles, Mr. Otto E. Rauchschwalbe, and Mr. E. S. McFadden.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (May 27)

Small grains continued to make excellent growth in most parts of Kansas during May. However, the condition of both wheat and oats is poor in many localities in the eastern part of the State, owing to too much cool, wet weather and water-logged soil. Most of the oats in the State were sown late and the crop remains late and many fields appear yellow.

Winter wheat is in excellent condition in the western half of the State and is further advanced than the crop in eastern counties. It appears now that western Kansas will have the largest wheat crop since 1932 and the first real crop in several years.

The disease situation in the State is most interesting. Leaf rust is fairly general on wheat but has failed to develop as rapidly as expected, owing to cool weather. Primary infections of stem rust of wheat were found at Manhattan on May 19 and again on May 23. On a recent trip to Texas the writer was unable to find stem rust in wheat fields in central Kansas but did find traces in extreme south-central Kansas on May 21. In north-central Oklahoma rather heavy infections were found on soft wheats but only traces were found on hard wheats. However, at least a trace of stem rust was found in every field inspected in Oklahoma. Leaf rust was heavy on most of the wheats of Turkey type between Manhattan, Kansas, and Denton, Texas, but was light on Chiefkan. The large acreage of Chiefkan in central Kansas undoubtedly will reduce the amount of leaf and stem rust infection in Kansas this year.

Other diseases of wheat that are very conspicuous this year are mildew and speckled leaf blotch (Septoria tritici). Mildew has been severe until lately but now is disappearing from commercial fields without seeming to have done much damage. The leaf blotch is the most general and severe infection of that disease the writer ever has observed. In many fields in Oklahoma all leaves already have dried up due to Septoria. Throughout central Kansas and Oklahoma infections are heavy even on flag leaves with the crop mostly still in the soft dough stage.

There also has been an unusually heavy infection of mosaic in Kansas this year. In central Kansas some fields of Tenmarq have been practically destroyed by a combination of yellow mosaic and hessian fly. The losses from hessian fly are large in many localities in the eastern half of the State and the infestation is general in that area.

Artificial inoculation with leaf and stem rusts of wheat and crown and stem rusts of oats are well advanced in the rust nursery at Manhattan. Excellent infections have been obtained and natural spread of rust from border, check, and rust-spreader rows to adjacent experimental plots is well under way.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (May 31)

The precipitation for May and for 1941 up to May 28 was approximately normal. More rain during the past three days has made the total for the year nearly 3 inches above normal and the total for the month up to this morning, 5.34 inches or over 3 inches above normal for May. Half of the May rainfall or 2.67 inches occurred on the 29th. The greater part of this fell during three hours. Some of the fields were eroded badly, emphasizing the desirability of more land to permit a rotation of grass with the cereal crops, to help bind the soil.

In general, the cereal crops are in excellent condition and further advanced than usual for this time of year. It is well that this is the case as the Say's Plant Bug, which does much damge during the milk stage of the grain, is expected to do some damage again although they are not so much in evidence on the Substation land as they were last fall. Winter wheat, which averaged 70 percent winter survival in the nursery, is in much better than average condition. Spring wheat, oats, barley, and flax also are better than average, owing to rains and favorable weather. Corn varieties are up to good stands. Sorghums and proso varieties are about to emerge. Two more dates-of-seeding flax will complete the cereal seeding for the season.

A light frost of 28° on May 8, combined with a heavy wind on the 6th and 7th, slightly injured oat and barley varieties. A temperature of 30° on the 23d did no apparent injury to cereal crops.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (June 5)

Precipitation at Fargo totalled 1.61 inches in May, about two-thirds of normal and temperatures averaged about four degrees above normal. In contrast, Langdon and much of the rest of the State had above-normal precipitation for May. Crops in general are in good condition, except some flax which had difficulty germinating in the dry soil.

Leaf rust was observed in the wheat nurseries at Fargo on June 2, and at Langdon on June 3, earlier than average. No sten rust has been found on the Station.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (June 2)

Weather conditions during May have been especially favorable for winter wheat and early-seeded spring grains. There is a possibility, however, that the growth is too rank in the event that any considerable drought might ensue. Heading began in the winter wheat nursery on May 29 and in the spring barley nursery on May 31. The heading dates this year are probably earlier than average. Rain fell on 8 days during the month, giving a total of 1.71 inches, as compared to 1.48 inches for the 11-year average. The 50-year average rainfall for May is 1.99. The mean temperature for May was 56.6°, which is 2° above the 11-year average.

Both the nursery and plots were irrigated on May 24 prior to a rather heavy rain. No lodging is evidenced at this time, although the possibility is rather pronounced with the unusually heavy growth. More than 50 corn hybrids planted on May 9 have made good growth. A minimum temperature of 28° was recorded on the 19th, but did little damage except in the lower parts of the valley. A maximum temperature of 88° was recorded on May 11.

Mr. D. E. Stephens, Washington, D. C., was a station visitor on May 27 and 28.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 June 25, 1941 No. 9

Personnel (June 11 - 25) and Field Station (June 1 - 15)

PERSONNEL ITEMS

Mr. E. P. Carter returned to Washington on June 23 from a trip in Ohio, Illinois, Iowa, and Indiana where he conferred with grain supervisors and other officials on "sick" wheat problems, and contacted commercial storage representatives for future cooperative investigations.

Mr. J. Allen Clark left Washington June 14 on his annual trip in Minnesota, Iowa, Nebraska, Colorado, Wyoming, South Dakota, North Dakota, and Montana to inspect and take notes on cooperative wheat experiments and confer with cooperating workers regarding wheat research.

Mr. F. A. Coffman left Washington June 15 on his annual trip in the oat-producing regions of the West. He will make stops in Ohio, Indiana, Illinois, Missouri, Kansas, Colorado, Nebraska, Iowa, Wisconsin, Minnesota, North Dakota, Wyoming, Utah, Idaho, and Montana to inspect cooperative experiments. He will also confer with officials of the Department and of the State agricultural experiment stations regarding oat research.

Dr. Charlotte Elliott left Washington on June 25 for New York State to take notes on sweet corn plantings and collect insects. She will spend June 30 at Arendtsville, Pa., taking notes on corn experiments and collecting insect vectors.

Dr. H. B. Humphrey returned to Washington on June 20 from a visit to southwestern Virginia where he took notes on rust nurseries.

Mr. C. H. Kyle left Washington June 12 on his annual trip in Georgia, Florida, South Carolina, and North Carolina to select and hand pollinate corn and obtain data from experimental corn. He will also confer with officials of agricultural experiment stations regarding corn experiments.

Dr. H. A. Rodenhiser left Washington on June 18 for various points in Indiana, Illinois, Kansas, Nebraska, and Colorado to consult with State agricultural experiment station officials regarding cooperative research on cereal diseases and to take smut and rust notes in experimental plots.

Dr. L. M. Stahler was granted the degree of Ph. D. from the University of Minnesota in June 1941.

Mr. T. R. Stanton will leave Washington on June 26 for an extended trip through Indiana, Illinois, Wisconsin, Iowa, and South Dakota to inspect cooperative and other oat experiments and to collect plant and disease material. He will confer with agricultural experiment station officials regarding oat varieties and further experiments.

Dr. V. F. Tapke will leave Washington about June 28 on a 3 weeks' trip to New York State to take notes on barley smut experiments.

Mr. J. W. Taylor will leave Washington on June 28 for a month's trip through Illinois, Wisconsin, Michigan, New York, and Pennsylvania to confer with agricultural experiment station officials and others regarding cereal research, and to inspect cereal experiments.

Dr. G. A. Wiebe left Washington June 15 on an official trip through Pennsylvania, Ohio, Indiana, Illinois, Michigan, Missouri, Wisconsin, Minnesota, Iowa, Nebraska, North Dakota, South Dakota, Colorado, Wyoming, Idaho, Utah, and Montana to conduct barley experiments. He will confer with personnel of the Division and the agricultural experiment stations regarding barley research and collect barley species.

RECENT PUBLICATIONS

Charlotte Elliott. Bacterial Wilt of Corn. U. S. Dept. Agr. Farmers' Bul. 1878, 21 pp., 13 figs. May 1941.

V. C. Hubbard. Irregular Germination of Wheat in a Dry Soil. Amer. Soc. Agron. Jour. 33(6): 577-579, fig. 1. June 1941. (Contribution from the Division of Cereal Crops and Diseases and the Division of Dry Land Agriculture, Bureau of Plant Industry, U. S. Department of Agriculture.)

Jenkin W. Jones and A. E. Longley. Sterility and Aberrant Chromosome Numbers in Caloro and Other Varieties of Rice. Jour. Agr. Res. 62(7): 381-399, figs. 1-17. April 1, 1941. (G-1196)

A. E. Longley. Knob Positions on Teosinte. Jour. Agr. Res. 62(7): 401-413, figs. 1-3. April 1, 1941. (G-1199)

H. H. McKinney. Virus Genes. Seventh Internatl. Cong. Genetics Proc. Edinburgh, Scotland. August 23-30, 1939. Sec. 183, pp. 200-203. 1939.

_____. The "Acquired Immunity" Test and Its Limitations for Establishing Relationship between Virus Mutants, and Nonrelationship between Distinct Viruses. Third Internatl. Cong. Microbiol. Proc. New York City, N. Y. September 2-9, 1939. pp. 316-317.

J. T. Spencer. The Effect of Root Pruning and the Prevention of Fruiting on the Growth of Roots and Stalks of Maize. Amer. Soc. Agron. Jour. 33(6): 481-489, figs. 1-6. June 1941. (Contribution from the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1208 June 20, 1941

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Whenever an employee of the Bureau performs travel on official time for which he is reimbursed by cooperating agencies, a Bureau letter of authorization must be secured. The authorization must be specific as to itinerary, per diem allowance and limitations, the use of personal automobile, if authorized, including mileage limitations and use. The provisions of such an authorization must conform in every way to Department requirements where travel expense is paid from Federal funds.

Where this travel is frequent throughout the year, there is no objection to an annual letter of authorization of this character. Division heads should, however, exercise the same close control over travel under such a letter of authorization as over any other travel performed at Federal expense.

A copy of the reimbursement voucher, certified as correct, must be furnished through the Division to the Bureau Accounting Office, covering all reimbursements under cooperative letter of authorization.

Government employees are specifically barred by act of Congress from receiving any salary in connection with their services as an employee of the Government from any source other than the Government of the United States, except as may be contributed out of the Treasury of any State, County, or Municipality, and no person, association, or corporation shall make any contribution to, or in any way supplement the salary of, any Government official or employee for the services performed by him for the Government of the United States. Contribution to the salaries of employees when made by States, Counties, or Municipalities must be covered by a cooperative memorandum of understanding or agreement and be a matter of record in the formal appointment by the Department.

In order that there may be a strict compliance with this law, no per diem will be authorized on a cooperative letter in excess of the per diem that would be granted if the employee were performing the travel from Government funds.

Very sincerely,

/s/ E. C. Auchter
Chief of Bureau

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1207 June 25, 1941

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

Reference is made to our Memorandum to Heads of Divisions dated May 28, 1941, enclosing copy of the Secretary's Memorandum 880, Supplement 1, dated May 12, 1941, on Minimun Wage Policy.

Upon further consideration of the application of the 30 cents per hour minimun rate, the following equivalents have been accepted as a full compliance with the minimun wage policy as announced by the Secretary.

30 cents per hour, $2.40 per day, $60.00 per month, and $720 per annun.

These rates replace those given in the Memorandum to Heads of Divisions dated May 28, 1941.

Very sincerely,

/s/ M. A. McCall
Acting Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (June 10)

The temperatures in May were about normal with the maximum 92°, the minimun 58°, and the mean 74° F.

The total precipitation, 13.75 inches, was 8.99 inches higher than the 31-year average for May.

Rains the latter part of April and the first week of May were beneficial to young rice; caused complete germination in fields that had dried out after seeding; and aided in seedbed preparation. Heavy rains in the last week of May damaged fields of late-sown rice by flooding some for days

and in others causing frequent accumulations of water in low areas, which delayed germination and in some places killed the young seedlings.

Stands are good in most of the rice plots on the Station, with the exception of those that were damaged by heavy rains at time of germination. Stands of cotton and other row crops are in the main good, but frequent rains have prevented satisfactory cultivation.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice and Oat Production and Improvement, C. R. Adair) (June 21)

The total rainfall from January to May 1941 was 13.99 inches, or 9.85 inches less than the twelve year average of 23.84 inches, for this period. The precipitation from June 1 to 20 was 1.55 inches, and the average for June is 3.56 inches. The dry weather caused poor stands of rice on some station plots, but on many farm fields in April there was sufficient rainfall so that most rice fields, sown the last of the month, have very good stands. In May, there was only 1.10 inches of rain and most of it came during the first part of the month, hence most of the rice sown in May emerged very unevenly and the stands are poor. It was necessary to irrigate many station plots and farm fields to supply moisture for germination and seedling development.

The winter oat crop in this territory was better than average in 1941. The weather was mild so that there was no winter killing. Oats did not grow as tall as usual because of the dry spring weather. There was enough rainfall in April and early May so that the grain developed normally in all but a few very late strains in the nursery. Crown rust was present in sufficient quantities to aid in the elimination of susceptible lines, but not to cause any reduction in yield of adapted varieties. Lee (C.I. 2042) and Hairy Culberson x Fulghum (C.I. 3424) were the only varieties grown in the field plot test that were damaged by crown rust as shown in the following table.

Most of the varieties listed in the following table were grown in plots for the first time this year. Lee x Victoria (C.I. 3923) gave the highest average yield, 81.9 bushels per acre. Hasting's Hundred Bushel (C.I. 2462) ranked second and Ranger (C.I. 3417) third, with average yields of 76.2 and 75.6 bushels per acre, respectively.

Small increase block of all of the better Lee x Victoria selections, listed in the table, were grown this year. The one-half acre increase block of C.I. 3923 gave an average yield of 100.5 bushels per acre.

Twenty-six winter oat varieties and selections grown in triplicated 1/50-acre plots at Stuttgart, Ark.

Variety or parents	C. I. no.	Grain yield (Bu. per acre)	Weight (Lbs. per bu.)
Lee x Victoria	3923	81.9	31.7
Hasting's Hundred Bushel	2462	76.2	30.8
Ranger	3417	75.6	33.8
Lee x Victoria	3927	73.3	34.3
Do	3926	70.9	33.9
Do	3924	70.2	32.2
Victorgrain	3692	69.4	32.2
Ferguson 922	2150	68.0	33.0
Lee x Victoria	3928	67.3	34.9
Do	3694	66.8	33.4
Alber	2766	66.2	30.9
Letoria	3392	66.2	30.4
Lee x Victoria	3929	65.7	33.3
Coker's Stanton	3855	64.7	32.7
Fulghum	708	63.1	33.8
Fultex	3531	62.6	32.8
New Nortex	3422	61.8	31.1
Lee x Victoria	3932	60.5	35.4
Do	3393	60.2	36.0
Fulghum	2500	58.4	32.7
Lee x Victoria	3931	58.4	33.9
Fulgrain No. 4	3693	57.4	34.5
Lee x Victoria	3930	57.4	33.0
Fulgrain No. 2	3423	55.8	29.2
Lee	2042	33.4	25.9
Culberson x Fulghum	3424	28.4	27.7

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (June 16)

It has rained 12 days during the first half of June, with a total of 1.97 inches of rainfall. The weather has been cloudy, cool and work in the field has been delayed.

Wheat, barley, oats, and flax have made rapid growth. Oats at University Farm are starting to head. All of these crops were heading at Waseca on June 14.

There is a heavy infection of leaf rust on winter wheat and rye. It was beginning to spread on spring wheat prior to the rainy weather, and probably will develop rapidly now. No stem rust has been found on either spring or winter wheat to date. There is a heavy epidemic of stem rust in the winter wheat nursery at University Farm from artificial infection. There is considerable mildew in the winter wheat nursery and field plots here at the Station.

Corn is making a rapid growth but is rather yellow from the excess rainy, cloudy, and cool weather.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (June 10)

During the first 10 days of June, a total of 7.03 inches of precipitation was received further damaging the low crop prospects for grain in this area. All grain, which was uncut when these rains started, is now so lodged and damaged that quality will be poor. Considerable proportions of the fall-sown oats and barley were harvested before the first of June but nearly all wheat is still standing in the field. Floods caused serious losses in low land areas.

Harvest of experimental grain has been seriously hampered. Fall-sown oats in plot tests have been ripe for two weeks and since no prospect of getting machinery into the field was in view, samples were taken by hand to determine yields. It may be necessary to harvest other plot tests by means of hand cut sample areas.

Reports from the few fields of wheat cut with the combine indicate that yields will be very disappointing and test has been from 52 to 56 pounds per bushel.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (June 18)

Although there was a deficiency of rainfall at Manhattan in May, there was abundant precipitation in nearly all other parts of the State. Crops made fairly good growth, but were retarded in many localities by subnormal temperatures and too much rain.

The first half of June was a very wet period and nearly all major rivers in the State have been at or near the flood stage. Crop damage from flooding has been extensive in the river valleys. In fact, there has been too much rain for the best development of winter wheat and farmers are concerned about the prospects of a wet harvest. The first wheat harvested in south central and southwestern counties has been disappointingly low in test weight.

Despite cool weather in May, which retarded rust development, this is proving to be a year of severe losses from some rust. Crown rust of oats is present in epidemic proportions in the eastern half of the State and will cause severe losses. The leaf rusts of rye and barley are the heaviest the writer ever has observed. Leaf rust of wheat is as heavy as in 1938, but late development of infection prevented extreme losses. Stem rust now is becoming prevalent on susceptible varieties of both wheat and oats. Winter wheat is so near maturity that the losses from that rust will not be large. Cool weather, a large acreage of semi-resistant varieties, and the prevalence of physiologic race 17 all were factors delaying development of stem rust of wheat in Kansas in 1941.

The rust nursery at Manhattan now is ready for harvest. This is the earliest harvest date encountered in these studies. Leaf rust readings have been made and stem rust readings are under way.

Recent station visitors were Dr. B. B. Bayles and Dr. K. S. Quisenberry.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (June 17)

The rainfall from June 1 to 15 measured 5.04 inches, most of it falling within a period of three days. As a result, flood conditions prevail over much of Kansas. Row crops were badly damaged from the washing and covering of the seedling plants. More than 200 acres of row crops had to be replanted on the commercial fields at this station, a condition which also prevailed over much of the immediate territory. Most of the experimental sorghums on the Cereal Project had to be replanted at a late date. Planting had already been delayed because of the difficulty in getting the seedbed into proper condition because of the excessive rainfall during the month of April. The rainfall for May was somewhat below normal which permitted the wheat crop to recover from wet weather diseases and to develop a stronger straw against lodging.

The heavy rains in June caused lodging in oats and barley but in this territory most varieties of wheat except Early Blackhull retained an upright position. A good wheat crop is now assured on the Cereal Project. Yields from 30 to 40 bushels are quite probable. There was a heavy epidemic of leaf rust on the more susceptible varieties. A trace of stem rust has developed but the crop now appears to be too far along to be subjected to a serious loss.

Loose smut in barley identified as Ustilago nuda is very prevalent, the infection in the more susceptible varieties running as high as 6 or 7 percent. Flynn barley appears to be one of the more susceptible varieties. This variety is the leading barley grown in Kansas.

The harvesting of the small grains will begin within the next three days on the Cereal Project at this Station.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (June 16)

The period from May 25 to the middle of June was unprecendented for heavy rainfall at this Station, the total recorded for this period being 13.07 inches. A total of 6.07 inches fell during the three days, June 4, 5, and 6. The rainfall for the first half of June was 9.42 inches, which is considerably more than has fallen previously in any month during the 50 years in which weather records have been kept at Dickinson. Many of the rains were of the drizzling type that soaked into the ground fairly well but a few had considerable run-off and caused erosion in the fields. During the 3-week period mentioned, rain was recorded on all but 6 days. When not raining it usually was cool and cloudy so there was but little sunshine.

All cereal crops are in good condition except corn, sorghum, and proso which need more warmth and sunlight. Barley and winter wheat varieties are beginning to head and early varieties of spring wheat and oats soon will be heading. In the spring nursery weeds were pretty well subdued by cultivation and hoeing before the rainy spell and now the vigorous growth of the grain will prevent the weeds from making much growth. In the nursery rows of winter wheat and in field plots of spring grain, there will be some weeds to compete for the abundant moisture. A hard crust has formed on the surface soil which is being broken by cultivation of all row crops.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO
(Wheat Improvement, G. S. Smith) (June 18)

Moisture shortage in May was severe enough to cause the ground to begin cracking, but at Fargo 5.5 inches of precipitation have been recorded the first half of June. Consequently, the soil is more moist than it has been in years. Scattered crop damage has been reported throughout the State, but the result should be beneficial as a whole. Weeds and grain both grew slowly during the wet cloudy weather, but with the return of sunshine, development has been rapid.

Rainfall at Langdon has been about three inches thus far in June, well above normal, and earlier moisture conditions there have been favorable. Wheat plots and nursery are in excellent condition.

Leaf rust on wheat has been present since the first of June, but no stem rust has yet been found. South winds have been persistent the last two days, and dews remain until noon daily.

ARIZONA

UNITED STATES FIELD STATION, SACATON (C. J. King, Supt.) (June 19)

Weather conditions were especially favorable for flax, the total rainfall for the crop season, Nov. 16 to May 15, being 13.47 inches. The land was irrigated Nov. 9, before planting, but no further irrigation was required. Ten varieties were grown in 3-row quadruplicate plots, sown Nov. 16 and harvested May 19. Yields and other data are shownas follows:

Variety	C. I. no.	Height	Test weight	Seed size	Acre yield
		(In.)	(Lbs.)	(Grams)	(Bu.)
Argentina Pale-blue	472-9	29	52.8	7.8	70.4
Bison x C.I. 36 (Abyssinian)	925	24	53.1	6.1	60.5
Indian Type 46	---	18	53.0	6.6	60.5
Inco	1011	30	53.4	5.4	59.3
Ottawa 770B x Bison	1040	27	53.1	6.6	58.0
Koto	842	24	53.9	5.6	55.6
Biwing	917	24	53.7	5.8	55.1
Bolley Golden	644	30	53.7	6.8	54.3
Rio	280	32	52.2	7.0	53.1
Ottawa 770B x Bison	1036	29	53.9	6.6	52.6
Punjab 1/	20	26	52.6	7.0	34.4

1/ Grown in increase plot not comparable with nursery plots.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
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Vol. 33 July 10, 1941 No. 10

Personnel (June 26 - July 10) and Field Station (June 16 - 30)

PERSONNEL ITEMS

Dr. H. B. Humphrey left Washington on July 6 for a trip through Ohio, Michigan, Wisconsin, and Iowa to inspect rust experiments and confer with cooperators of the State agricultural experiment stations.

Dr. M. T. Jenkins returned to Washington July 7 from a trip to Tennessee and Louisiana where he conferred with State and Federal officials regarding cooperative corn improvement research.

Mr. L. W. Kephart was in western Virginia on July 2 laying out experiments on Bermuda grass control and studying weed control experimental plots.

RECENT PUBLICATIONS

Franklin A. Coffman. Growing Corn. Unit 9, pp. 119-146. Growing Wheat. Unit 12, pp. 200-222. Growing Oats. Unit 13, pp. 223-242. In Farm Crops and Soils. J. B. Lippincott Co., Philadelphia, Pa. 1941.

J. H. Kempton and Louis R. Maxwell. Effect of Temperature during Irradiation on the X-Ray Sensitivity of Maize Seed. Jour. Agr. Res. 62(10): 603-618, figs. 1-3. May 15, 1941. (G-1209)

L. W. Kephart. Growing Legumes (Type Crop Alfalfa). Unit 14, pp. 243-254. Improving Pastures. Unit 15, pp. 255-268. In Farm Crops and Soils. J. B. Lippincott Co., Philadelphia, Pa. 1941.

George W. Fischer and Moses N. Levine. Summary of the Recorded Data on the Reaction of Wild and Cultivated Grasses to Stem Rust (Puccinia graminis), Leaf Rust (P. rubigo-vera), Stripe Rust (P. glumarum), and Crown Rust (P. coronata) in the United States and Canada. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. Supplement 130. 30 pp. June 15, 1941. (Joint contribution from the Divisions of Cereal and Forage Crops and Diseases and the Minnesota and Washington Agricultural Experiment Stations.)

L. S. Mayer and A. B. Strand. A Hybrid Sweet Corn for Tennessee. Tenn. Agr. Expt. Sta. Cir. 75. 4 pp., 1 fig. April 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Tennessee Agricultural Experiment Station.)

G. H. Stringfield, R. D. Lewis, and H. L. Pfaff. Cooperative and Material in the Cooperative Corn Performance Tests, 1941. Ohio Agr. Expt. Sta. Mimeograph Rpt. No. 74, 9 pp. June 16, 1941. [Mimeographed at Ohio Agricultural Experiment Station.] (Cooperative investigations of the Ohio Agricultural Experiment Station, the Division of Cereal Crops and Diseases, and corn growers on 49 Ohio farms.)

Arnold J. Ullstrup. Two Physiologic Races of Helminthosporium maydis in the Corn Belt. Phytopathology 31(6): 508-521, figs. 1-6. June 1941. (Cooperative investigation between the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (July 2)

Small grains have continued to make excellent growth in most parts of Minnesota during May. Some damage has been reported in the northwestern part of the State from excess rainfall, where the wheat has been drowned out in the low places.

Winter wheat is in excellent condition and will be ready for harvest in about ten days.

A heavy epidemic of leaf rust has developed in both the winter and spring wheats. The winter wheat probably will not be injured, but Thatcher, the most commonly grown spring wheat, is heavily infected with leaf rust. Stem rust is developing rapidly at University Farm on the susceptible varieties.

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (July 1)

June weather conditions were the most unfavorable for the harvest of small grains, experienced in years. A total of 9.26 inches of precipitation was recorded, which is 6.16 inches above normal. The majority of this rainfall occurred during the first half of the month, and since this followed a very wet May fields were so thoroughly soaked that it was impossible to get machinery into the field until near the first of July. Some grain left for combine harvesting is still in the field.

Yields of small grain have been very disappointing. Excessive losses occurred on all grain left for combine harvesting. Grain cut with a binder and in the shock since late May shattered badly so that considerable losses were experienced in this grain as well. Commercial fields of oats are yielding from 10 to 25 bushels, and wheat from a failure to 10 bushels per acre. Test weights are very low.

The writer visited the experimental plantings at Chillicothe and Amarillo from June 19 to 23. Serious losses from excessive rains have occurred throughout the rolling plains area and the southern part of the Panhandle. Leaf rust, speckled leaf blotch (Septoria tritici), and glume blotch (S. nodorum) have caused serious losses throughout the area. Armyworms have also caused considerable damage to grain.

The following report was taken from Mr. I. M. Atkins' letter of June 24.

"I have just returned from a rather extensive trip over west Texas. A considerable area of west Texas was covered because of the very unusual conditions which have reduced one of the most promising wheat crops in recent years, to one of average size and very inferior quality.

"My trip covered the central west Texas area from Jacksboro west to Dickens, then north and west to Plainview, north to Amarillo, Gruver, Spearman, Perryton, and back by way of Canadian, Childress, Chillicothe, and Wichita Falls. The rolling plains area from Jacksboro and Wichita Falls west to the "caprock" has been deluged with rain for the past two months. Some sections have received more than their normal annual rainfall in that period. Wheat is all broken over about 12 inches above the ground, with many of the heads buried in the mud. No harvesting was possible until the last few days of last week and then only in selected portions of fields or certain fields. When I returned home yesterday it was showering in the Wichita area and this morning's paper reports a storm which did $100,000 damage at Wichita with more than an inch of rain.

"At Seymour they reported the grain harvested as weighing from 45 to 58 pounds per bushel. At Chillicothe, Mr. Quinby stated that yields ranged from 5 to 12 bushels with test weights from 35 to 55 pounds per bushel. The variety test at Chillicothe, which was so promising at one time, is still unharvested and the grain is badly shriveled. The damage is, of course, due to a number of causes. Leaf rust is apparently a very important one. The Mediterranean and Denton varieties produced the plumpest grain. I believe the biggest factor is that of Septoria. The early infections by Septoria [tritici] on the leaves was probably important, this was followed by stem infection causing all the nodes to be severely constricted and discolored both below and above the node. The heads are also discolored in many instances. Stem rust will be blamed for a lot of the damage both below and above the caprock but I did not see sufficient stem rust anywhere to materially influence yield or test weight. Another contributing factor was armyworm damage. Leaves were stripped from many fields and in some even the heads were eaten. Several county agents as well as workers in the areas reported a definite preference of armyworms for Turkey wheat as compared with Tennarq. Tennarq was resistant to stem rust this season, and with its moderate resistance to leaf rust, worms, and less Septoria it has produced the best yields and best test weight. As a result, there is a marked swing back to Tennarq this year. The Blackhull wheats are most susceptible to Septoria. Chiefkan is probably somewhat better in test weight than Blackhull or Early Blackhull. This may be due to its higher resistance to leaf rust.

"The high plains area has also received much above normal rainfall during the past two months. At Floydada, they had received over 5 inches of rain since June 1 and not a combine was running although all the grain was ripe. The grain is broken over from leaf rust and Septoria as far north as Tulia. From there north it is still too green to cut. The ground was dry there and the crop appeared more promising, if dry weather continues. They had had a whole week's drought. In the experimental plats at Amarillo and in fields from Tulia north, there is considerable leaf rust and Septoria on the leaves. Many stems show discoloration in the more advanced fields, and I believe that as the crop matures this northern area will also break over and the crop lodge as it has farther south. Weather conditions will, of course, influence this. The paper today reports 0.5 inch rain at Amarillo Saturday night or Sunday. A few fields of Early Blackhull were noted on the north plains. These were lodged and the grain badly shriveled. One field has been cut with a binder and looked very fine in the shock. The grain was shriveled and many not weigh 55 pounds.

"With the serious losses from Septoria this season, I think we should give more attention to this disease and if possible have some parental material for use in crosses. This may not happen again in many years but we should get what information we can this year. There seemed to be no great differences in the Chillicothe nursery. Tenmarq and Oro-Tenmarq (C.I.11673) were probably the best. Dave Reid has a large number of introductions and it is possible that he may note some resistant strains. At Denton we had a large number of winter wheats from the classification nursery but leaf and stem rusts were so bad that we could not take satisfactory notes on Septoria.

"The high plains area has the finest crop of oats and barley that I have ever seen up there. Crown rust was doing considerable damage and there was enough stem rust in some fields to do damage.

"At Denton, we received nearly 10 inches of rain the first 15 days of June. We are just now getting into the fields to get out crop harvested with the combine. Our variety test is almost a complete failure from wet weather, rust, and Septoria. Some varieties will not weigh 30 pounds per bushel. From an increase field of two acres of Red May wheat, we obtained about 4 bushels of approximately 30 pound wheat."

OKLAHOMA

AGRICULTURAL EXPERIMENT STATION, STILLWATER (Sorghum and Broomcorn, J. B. Sieglinger) (July 1)

The sorghum project on the College Farm at Perkins, Okla., is growing rapidly with a few of the early maturing varieties booting or starting to head. Chinch bugs damaged some seedlings of certain varieties, but with the advance of the season the bugs show no increase in number. Rainfall was too abundant until recently and a rain now would be welcomed to enable a good job of cultivation.

Work now is hoeing weeds and counting stands.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (June 30)

During the past 10 days there have been additional heavy rains in parts of Kansas, especially in western counties. Some of the rain came in the form of heavy downpours that caused severe crop damage and delayed harvesting operations.

The winter wheat crop in Kansas is proving to be a disappointment to the farmers and the grain trade. There has been a rapid deterioration in the crop in many localities since the middle of June. Yields are much lower than expected, and the test weight is very low with much of the crop weighing less than 58 pounds per bushel. The delay in harvest and the heavy rains have resulted in severe bleaching of the grain. Heavy rains during the maturation period favored the development of yellowberry, especially in Tenmarq.

Deterioration of the wheat crop seems to have been due to a combination of the following factors, arranged in the order of their importance: (1) Too much rainfall between flowering and maturity. Hard Red Winter wheat is normally a dry-land crop. (2) Very severe leaf rust infection about flowering time. The varieties Turkey, Early Blackhull, Blackhull, Nebred, and Cheyenne were defoliated very soon after flowering. (3) Unusually severe infections of Septoria tritici and S. nodorum. The former caused much premature drying of leaves in May and early June, while the latter developed heavily on the nodes late in June causing much broken and down straw. Early Blackhull and Blackhull seemed to be most severely damaged by S. nodorum. Besides broken straw this disease caused much discoloration of the heads. (4) Too much rain after maturity. This combined with Septoria damage has resulted in severely lodged fields. In places the heads are beaten into the mud and it is possible to harvest only part of them. Grain from such fields is low in test weight and badly bleached. (5) Stem rust infection in some localities and sections especially in the later wheat in southwestern counties. (6) Hessian fly infestation in the eastern half of the State. There have been heavier infestations of hessian fly this year than for many years. Some fields in southeastern counties are scarcely worth harvesting and even in good wheat as far west as central Kansas there is much straw down from fly. (7) Diseases such as mildew, mosaic, and take-all took an unsually heavy toll in 1941. Mildew was widely distributed and very severe in the early spring. Mosaic did considerable damage in a few localities in central counties during May. Take-all appeared to be particularly severe in a few north-central counties during June although the disease probably was there much earlier. All of the unfavorable factors listed above proved to be too much for what appeared in early spring to be the most promising crop in years. As a consequence, Kansas now is harvesting a crop that probably will be much below the estimated yield and one that is unusually poor in quality.

The behavior of stem rust of wheat this spring was most interesting. Infection appeared in the State sufficiently early to be alarming but failed to spread rapidly, owing partly to temperatures below optimum for rust development and partly to the fact that most of the inoculum was physiologic race 17 to which Kanred, Tennarq, and several other varieties are resistant. Kanred, Tennarq, Cro x Tennarq, and Kawvale x Tennarq had only traces of infection. Only light infection developed on Blackhull, Chiefkan, and Red Chief. The failure of stem rust to develop heavily on the large acreage of Tennarq, Chiefkan, Blackhull, and Early Blackhull in central Kansas is largely responsible for the relatively small losses from stem rust this year. However, considerable stem rust now is developing on late wheat in western counties and the losses may ultimately be greater than expected.

Harvesting in the wheat and oat rust nurseries now is nearly finished. Head and plant selections have been made in promising rows and threshing of more than 2,000 head selections is under way. Much of the next two months will be devoted to threshing and the examination of seed.

Recent station visitors have been Mr. F. A. Coffman, Dr. H. A. Rodenhiser, and Dr. S. C. Salmon.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (June 30)

Harvest is in full swing in this territory. Yields are running from 15 to 35 bushels to the acre with a probable average of about 20 bushels for the county. Local heavy rains have caused some lodging in the territory. Early Blackhull has been highly susceptible to lodging and the tangled straw has been difficult to harvest. The farmers who have been growing Early Blackhull have been able to reach the early market 4 to 5 days in advance of farmers growing such varieties as Tenmarq or Blackhull. This has been an advantage to the growers of Early Blackhull, but no doubt will be offset by lower yields for the variety.

The harvesting on the project will practically be completed by July 2. Threshing will follow immediately. The yields of wheat should range from 25 to 35 bushels, while for barley and oats the range will run from 35 to 50 bushels.

Sorghum planting has been considerably delayed because of rain. Most of the sorghums yet will have to be thinned to a stand and given one or two more cultivations before they can be laid by.

The weather at this time is dry and hot and ideal for the harvesting of small grains.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 1)

The latter half of June was comparatively warm and only 0.66 inch of rain was recorded. The total for the month, however, was 10.08 inches. The precipitation for the year to date, without counting a light shower recorded this morning, was 18.32 inches, or over 3 inches above the normal yearly precipitation of 15.20 inches for Dickinson.

All cereal crops are in good to excellent condition. Corn and sorghum varieties are much improved with the coming of warmer weather. Flax varieties are in bloom. Early varieties of wheat, oats, and barley are fully headed and late varieties are beginning to head.

A little leaf rust appeared on the winter wheat on June 20 and a light infection is present on a few varieties of spring wheat. No stem rust has been observed yet.

The maximum temperature for the month was 89° on the 25th and the minimum 38° on the 7th. Severe winds accompanying light showers on several nights broke over some of the grain, most of which was not far enough advanced to lodge badly.

The Substation has been visited by delegations of county agents, elevator men, and farmers attending the Grain School, held in Dickinson, and by several government and experiment station officials on the way to the Grass Conference at Mandan.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 1)

Weather during the latter half of June has favored rapid growth of cereal grains. Wheat varieties in the Fargo plots are pretty well headed, having nearly caught up to normal development after a slow start. Rainfall during June totalled 6.15 inches, most of it coming the first two weeks. General rains were recorded on June 30, and were needed in some sections.

Leaf rust development has been rather heavy, and stem rust has developed somewhat since its first appearance June 19. The last two weeks have been characterized by high temperatures, high humidity, and heavy dews, so further development of stem rust on susceptible varieties may be expected. Mindum durum shows scattered infection with stem rust, indicating perhaps that durum races came in with the earliest spore showers. Oftentimes durum races of rust have been less prevalent in early infection observations.

Nursery and plots at Langdon are in better condition than at Fargo, because of the more favorable early moisture conditions. Plots at Langdon look better than for some years.

AGRICULTURAL EXPERIMENT STATION, FARGO (Flax Diseases, H. H. Flor) (July 2)

Thus far in 1941 weather conditions throughout the Red River Valley have been favorable for the development of flax rust, Melampsora lini. Numerous aecial infections were found on Bison flax on the station plots at Fargo on June 16, following two weeks of cool rainy weather. This was a week to ten days earlier than usual and the aecial pustules were more numerous than they have been during any of the past ten years. Uredineal pustules were found on June 20 indicating that the first accial pustules had matured 10 to 12 days earlier. Since then, rust has increased rapidly and by July 2 infection was general throughout the Valley, and in some fields of Bison, was heavy enough to appreciably reduce yields. Viking, Bolley's Golden, Rio, and a number of hybrid lines in the regional flax nursery have been free from rust so far.

In the vicinity of Crookston, Minn., heavy rains flooded many fields and resulted in considerable drowning and much chlorosis of flax seedlings. While some recovery from the chlorotic condition may occur, a great deal of damage has been done and the yields will be materially reduced.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (July 1)

The precipitation at Bozeman during late May and all of June has been above normal. Winter wheats have been headed almost ten days. Stands are very heavy and most varieties have lodged some. Dryland winter wheat near Bozeman appears better than for several years. Dwarf smut is again present in the area north of town although percentages of infection seem somewhat lower than in 1938 and 1940. Two fields were observed last week in which infection was approximately 10 percent. Stands of all spring grains are excellent and early wheats are beginning to head.

The precipitation at Moccasin has been above normal since late May. All spring grains have excellent stands and growth is very rank. Moisture will be needed throughout July to mature heavy grain in the dense growth. At present the prospects seem good for high yields of both winter and spring wheats over much of the State.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (July 1)

Although precipitation during the first four months of 1941 was less than normal, rainfall during May and June was sufficient to assure good yields of grain and maximum development of soil nitrates. Rainfall in May totalled 3.03 inches compared with the 1929-1940 average of 0.77 inch. The total for June was 3.24 inches, whereas the normal is only 1.31 inches.

Lodging in some localized areas is severe, particularly in Union County, but over most of eastern Oregon is not a factor. The grain of both winter and spring wheats is unusually plump, so this should be an excellent year to measure relative resistance of varieties to shattering.

The heads of wheat sown in September are decidedly inferior to those of the same varieties sown after October 15. The lower spikelets did not develop on the early sowings, and only in a few instances more than two kernels per spikelet may be found. Early-sown wheat made a heavy growth last fall, and thus lowered the supply of available soil nitrates. Heads of varieties sown late in the fall, or where a nitrate fertilizer was added, have developed normally.

The excessive rainfall in May and June introduced a disease hazard which seldom occurs in eastern Oregon. A leaf spot, which in some cases appears very much like that caused by Septoria tritici, practically defoliated certain varieties of winter wheat. No fruiting bodies have been found on the plants, so apparently the condition is of physiological origin. Many varieties and selections show considerable resistance to this disease.

A heavy infection of powdery mildew developed on winter wheat in areas of higher rainfall, and is also prevalent on the Station on spring wheats seeded in solid stands. Leaf rust is severe on many varieties of spring wheat, but only a light infection is evident on winter varieties. A few varieties of spring wheat also have a few pustules of the uredial stage of stem rust, but the development is severe only on Lemhi. A heavy infection of foot rot hit several varieties in the winter wheat nursery, and several varieties, notably Brevon and Redchaff, will have their yields drastically reduced. The disease appears to have been caused by Cercosporella herpotrichoides, but has not been positively identified.

Temperatures during the past two months were mild, the maximum in May being 86° and that for June 94°. Maximum temperatures recorded for May were as low as 56° and for June 62°.

Among recent Station visitors were Dr. S. C. Salmon, Mr. C. A. Suneson, Mr. D. E. Stephens, and Dr. O. S. Aamodt.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (July 2)

Favorable weather conditions have prevailed during the month of June. Crops in general promise to give considerably above the average yields.

A survey was made over the winter wheat fields of northern Utah in which a rather uniform distribution of the "dwarf bunt" was observed. The percentage is not generally high, possibly because of resistant varieties being widely grown in this area. It was noticeable, however, that a high percentage of the volunteer grain was smutty. The Utah Kanred checks at Clarkston, Utah, showed approximately 30 percent of the low bunt. There appeared to be an almost absence of any tall smuts in the many fields observed. In 1940, the "dwarf bunt" was scarcely found in this area, while considerable tall smut was present. A few of the winter wheat fields are commencing to turn and may ripen in a short time.

Cereals under irrigation have grown prolifically and are commencing to lodge at this time. Black stem rust can be found in small amounts in both the winter wheat and spring wheat areas. Secondary infection is not serious at this time, but with continued cloudy, damp weather, serious trouble might follow as this is a very early occurrence for rust.

The precipitation during June totalled 1.04 inches, as compared to a mean of 0.76 inch. The maximum temperature of 94° F. was recorded on June 27. Only three other days during the month reached 90°. The mean temperature for the month was 61.4°, which was lower than the mean twelve-year average of 63.6°.

Considerable promising material is showing up in both the barley and wheat nurseries. Artificial loose smut inoculation plots have given very satisfactory results.

Dr. H. A. Rodenhiser spent four days in Logan and outlying areas observing cereal diseases.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 July 25, 1941 No. 11

Personnel (July 11 - 25) and Field Station (July 1 - 15)

PERSONNEL ITEMS

Mr. A. C. Dillman left Washington on July 15 for various points in Iowa, Minnesota, North Dakota, South Dakota, Montana, Idaho, Washington, Oregon, Wyoming, Wisconsin, and Illinois to inspect cooperative experiments with flax; classify and describe varieties of flax; and confer with agricultural experiment station officials and others in regard to cooperative experiments and new research problems with flax.

Dr. Charlotte Elliott left July 21 for New York State to take notes on corn experiments and collect insect vectors at Rockland County, Long Island, and Geneva. She will be in Arendtsville, Pa., on July 28 to take notes on corn experiments and to collect insect vectors.

Dr. A. G. Johnson left Washington on July 26 for North Dakota to confer with Department and State officials regarding revision of manuscripts on diseases of cereals and grasses.

Mr. L. W. Kephart will leave Washington about August 1 to make stops in Missouri, Kansas, Oklahoma, Colorado, Wyoming, Utah, Nevada, California, Oregon, Washington, Idaho, Montana, North Dakota, and Minnesota to inspect cooperative weed control experiments and to consult with agricultural experiment station officials regarding weed control research.

Mr. L. S. Mayer made a brief trip to Knoxville, Tenn., to inspect and rogue plots and fields of corn hybrids.

Dr. S. C. Salmon left Washington on July 19 for a trip through Minnesota, North Dakota, South Dakota, and Montana to visit experiments and to confer with Department and State officials regarding the weed control and wheat improvement programs of the Bureau.

RECENT PUBLICATIONS

C. C. Fifield, H. C. Fellows, Ray Weaver, J. F. Hayes, Elwood Hoffecker, and B. E. Rothgeb. Quality Studies of Wheat Varieties Grown in the Western Region in 1939. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 63 pp. June 1941. [Mimeographed.]

C. S. Holton. Flag Smut of Wheat in Washington. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 25(12): 335-336. July 1, 1941.

L. L. Huber and G. H. Stringfield. Strain Susceptibility to the European Corn-Borer and the Corn-Leaf Aphid in Maize. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 1 pp. [July 1941.] [Mimeographed.] (The Departments of Entomology and Agronomy, Ohio Agricultural Experiment Station, and the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, cooperating.) (This article taken from Science 92(2382): 172. August 23, 1940.)

Merle T. Jenkins. Progress Report of the Cooperative Uniform Comparisons of Corn 1941. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 7 pp. July 11, 1941. [Mimeographed.]

James H. Kempton. Elongation of Mesocotyls and Internodes in Jobs-Tears (Coix lachryma-jobi L.) Jour. Wash. Acad. Sci. 31(6): 261-263, fig. 1. July 15, 1941.

R. W. Woodward and D. C. Tingey. Inoculation Experiments with Covered Smut of Barley. Amer. Soc. Agron. Jour. 33(7): 632-642. July 1941. (Contribution from the Utah Agricultural Experiment Station, in cooperation with the Division of Cereal Crops and Diseases.)

O. A. Vogel. Relation of Glume Strength and Other Characters to Shattering in Wheat. Amer. Soc. Agron. Jour. 33(7): 583-589, figs. 1-3. July 1941. (Contribution from the Division of Cereal Crops and Diseases and the Washington Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. No. 1214

July 19, 1941

MEMORANDUM FOR HEADS OF DIVISIONS

Gentlemen:

The Department Office of Budget and Finance has requested that all supervisory employees in the Department give careful scrutiny to travel to be performed by employees under their direction, with a view to restricting travel only to that most necessary for the efficient conduct of the work with which we are charged. The Budget Bureau and committees of Congress are scrutinizing travel expenditures closely, and it is incumbent upon us to be in a position to justify all expenditures we may make for travel purposes. It is recognized that a certain amount of travel is inherent in the conduct of our work, yet by careful planning it may be possible to curtail some travel by meeting its objects in other ways. We must rely upon the Heads of Divisions to give travel careful supervision to avoid that which is unnecessary and to be assured that expenditures for travel purposes are completely justified.

It is requested that additional time be allowed for consideration of letters of authorization in the Bureau offices. It is appreciated that there will frequently be emergency travel which necessitates immediate attention, and we are always glad to give these exceptional cases prompt consideration. Many letters of authorization are coming through by special messenger with "rush" tags, where the travel to be performed has obviously been under contemplation for some time. Frequently, this is followed by another messenger chasing around with a request for an advance of funds. It is only rarely that a substantial trip has not been carefully considered for some time, and with foresight the letter of authorization should be requested in time to avoid undue efforts to expedite.

No travel should be undertaken until the letter of authorization has received Bureau approval. Employees who have letters of authorization should carefully observe the funds authorized, and not exceed the authorization. It is hoped that these requirements will be observed and steps for their enforcement not become necessary.

Your cooperation is requested.

Very sincerely,

/s/ M. A. McCall
Acting Chief of Bureau.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus)

Conditions have been favorable for the growth of cereal crops thus far in July. The weather has been cool, with a total precipitation of 1.15 inches, occurring in eight showers.

Harvesting of winter wheat has been completed.

Harvesting of oats and barley has been started. Spring wheat is in the soft dough stage. Leaf rust is severe and undoubtedly will cause damage in the yield and test weight of susceptible varieties. Thatcher, the most widely-grown spring wheat, is susceptible to leaf rust.

Corn is making excellent growth and is in the tasseling stage.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (July 15)

The principal event that affected cereal crops at this Station during the first half of July was the hailstorm on the late afternoon of July 9. This storm, which was the worst hail at this station since 1912, damaged all cereal crops considerably. Winter wheat and barley were beginning to ripen and were badly shattered by the hail, while spring wheat was badly broken over, leaving most of the heads which were still green still attached to the stalks. The abundance of moisture in the soil and the prevailing cool weather will aid in filling out some of the grain. This wheat will, doubtless, be badly shriveled and the yield greatly reduced. Some fields in the vicinity are called 100 percent loss. It is planned to harvest most of the cereal varieties unless more hail comes.

Leaf rust is very abundant, especially on winter wheat. There is an increasing amount of stem rust but probably this is too late to be serious in this locality. Green Stink Bugs are not numerous enough to do serious damage yet.

Dr. C. E. Leighty visited the Substation on the 9th and saw the cereal varieties before the hailstorm. A farm tour on the 11th broght 18 or 20 cars of farmers to visit the Substation. They showed considerable interest in cereal varieties and the differential injury from hail.

The precipitation for the first half of July was 2.56 inches and that for the year to date, 20.88 inches. The maximum temperature for July and for the year has been around 90°.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 16)

Precipitation during July and the total for the year at Fargo is below normal, despite heavy rains in June. However, temperatures have been moderate, and growth of the grain has been very good. Development is perhaps three or four days later than normal.

Leaf rust of wheat is very heavy this year on susceptible varieties, and leaves are dying. Stem rust is developing steadily on susceptible varieties, but nothing startling is indicated. Moisture conditions have favored the rusts, heavy dews are common, and light showers have been frequent, but temperatures perhaps have not been high enough to cause a more rapid development of sten rust.

Several winds and rain storms have caused some lodging of the grain, particularly oats. Varietal differences are apparent in the nursery and plot experiments.

Scab on wheat is rather severe for this region. Black chaff also is developing. Crown rust of oats and flax rust are reported to be unusually severe.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 August 10, 1941 No. 12

Personnel (July 26 - Aug. 10) and Field Station (July 16 - 21)

PERSONNEL ITEMS

Dr. Charlotte Elliott was at Manassas, Va., August 7 examining corn for stalk rot and collecting insect vectors.

Mr. C. H. Kyle will leave Washington on August 15 for a three and one-half months' stay at Tifton, Ga., where he will select and harvest experimental corn.

Dr. M. T. Jenkins will leave Washington on August 17 for various points in Virginia, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Louisiana, Arkansas, Tennessee, Kentucky, Ohio, Indiana, Illinois, Wisconsin, Iowa, South Dakota, Nebraska, Kansas, Missouri, West Virginia, and Pennsylvania to inspect corn experiments and confer with State and Federal agricultural experiment station officials with reference to cooperative corn improvement research.

RECENT PUBLICATION

C. C. Fifield, J. A. Clark, Ray Weaver, H. C. Fellows, J. F. Hayes, Elwood Hoffecker, B. E. Rothgeb, and Alfred Christie. Chemical, Milling, and Baking Experiments with Hard Red Spring Wheats 1940 Crop. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 28 pp. July 20, 1941. [Mimeographed.]

PAYROLLS

It is absolutely necessary that names and titles on payrolls agree with appointments, affidavits, etc. Affidavits of course must agree with appointments.

Payrolls should be written with the given name first.

In preparing field payrolls to be submitted to Washington for payment, please be sure that the two yellow carbon copies are legible. The white carbon should be the last copy as it is not so important that this be clear.

H. S. Smith
Junior Administrative Assistant

N O T I C E

Manufacturers of automobile tire chains have notified the Bureau that when present stocks are exhausted, difficulty may be experienced in obtaining deliveries. Deliveries of tires and tubes are now very much delayed.

H. S. Smith
Junior Administrative Assistant

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Aug. 9)

Temperatures in June and July were about normal. In June the maximum was 91°, minimum 68°, and the mean 81° F. In July the maximum was 93°, minimum 71°, and the mean 82°.

The total precipitation for June was 7.29 inches, or 2.84 inches above the 31-year average, and the total for July was 7.76 inches, or 1.61 inches above the 31-year average.

The frequent rains in June and July were beneficial to rice, but interfered with the cultivation of non-irrigated crops and in some localities caused the abandonment of these crops. Probably at no other time in the history of rice growing in southwestern Louisiana, since the advent of the irrigation canal system, has a crop been grown with so little irrigation water from canals and deep wells during the growing season as in June and July of this year. Many fields of early-maturing rice have been kept submerged by rainfall alone.

The rice crop, as a whole, appears to have less diseases at this time than in any season since 1928. Leaf spot diseases are conspicuously abundant only in certain isolated fields. Some commercial fields of early-maturing rices will be ready for harvest in the first week of August.

IOWA

AGRICULTURAL EXPERIMENT STATION, AMES (Crown Rust of Oats, H. C. Murphy) (Aug. 1)

Dry weather during May retarded the development of small grains in Iowa and doubtless was an important factor contributing to the infection of halo-blight of oats, damage from oat blast, and sterility of barley and spring wheat observed in many fields. Liberal rains since the first of June allowed considerable recovery in vegetative growth, particularly for the later-maturing fields; but it also was very favorable for the development of leaf rust and scab of wheat, crown rust of oats, and many other diseases.

Winter wheat, which was severely damaged by the Armistic Day freeze of 1940, was further severely damaged by the heavy epiphytotic of leaf rust. Speckled leaf blotch also caused considerable damage and was especially prevalent on varieties resistant to leaf rust. Stem rust, loose smut, black chaff, and other wheat diseases were present but, except for scab on spring wheat, appeared to be of minor importance compared with leaf rust. Scab was unusually severe on spring wheat in Iowa. The yield and quality of some fields of Thatcher were reduced 50 percent by scab, although the average reduction was somewhat less. Leaf rust and scab together virtually ruined the Iowa spring wheat crop.

Crown rust of oats caused at least a 20 percent average reduction in the 1941 Iowa oat yields. Its severity was similar to those of 1935 and 1938. Some early-maturing varieties escaped maximum damage, while later varieties suffered at least a 50 percent reduction in yield and test weight, owing to crown rust infection. Oat yields, now being reported from various parts of the State, are very disappointing both from the standpoint of acre yield and test weight. Test weights, as low as 20 pounds per bushel, are not unusual. These low yields and particularly the low test weights obviously are largely a direct or indirect result of the severe crown rust infection. It is interesting, therefore, to read such comments as the following, which recently appeared in an Iowa newspaper: "Oat yields are very disappointing. Rust caused considerable damage but most of the loss seems to be due to light oats." The new crown-rust, stem-rust, and smut-resistant varieties such as Boone, Marion, and Tama showed a striking benefit from their protection against crown rust. On the other hand, varieties such as Richland, Iogold, and particularly the late-maturing Vanguard that are resistant to stem rust only were heavily infected with crown rust, as were Gopher, Iowar, Columbia, and other leading commercial varieties grown in Iowa.

It was evident in 1941, as it was in 1935 and 1938, that the "Victoria type" of resistance possessed by Boone, Vicland, Tama, etc., and the "Rainbow type" of resistance possessed by Marion, do not give as complete protection from crown rust as does the "Bond type" of resistance possessed by numerous selections from crosses of D69 x Bond, Bond x D67, Anthony x Bond, etc. Some of the selections from these later crosses are highly promising and one of them probably will be increased for distribution to farmers. In the meantime approximately 350,000 bushels of seed of the new rust- and smut-resistant varieties, Boone, Marion, and Tama, are available for seeding in 1942.

A severe hailstorm on June 30 virtually destroyed our extensive spring-sown small grain nursery at Ames. Because of this storm no yields will be recorded for 389 oat selections grown in lattice designs and 1,311 selections grown in single plots at Ames. Likewise, no yields will be available for 320 barley selections grown in replicated experimental designs at Ames. Fortunately, 147 of the advanced oat selections and 218 of the barley selections were repeated in similar tests at the Kanawha substation.

MINNESOTA

AGRICULTURAL EXPERIMENT STATION, UNIVERSITY FARM, ST. PAUL (Wheat Breeding, E. R. Ausemus) (Aug. 3)

Harvesting of the small grains, with the exception of the Rust Nursery, has been completed. Spring wheat has been harvested in most of the States, except the area north of Crookston.

Scab was damaging in southern and west-central Minnesota. This injury, together with the heavy leaf rust epidemic and the extremely high temperatures of the past two weeks, will undoubtedly reduce both the quality and yield of wheat. Thatcher is about the only wheat grown and it is susceptible to leaf rust and has a heavy infection of scab this year. There is very little stem rust; Marquis and Ceres, however, were heavily infected in the plots at Morris and appeared to be killed by stem rust. A few hessian flies were found in a field of wheat near Wheaton, Minn., but the damage was negligible.

Crops are better west of the Red River in North Dakota than on the Minnesota side. Stands are thin over much of Minnesota and eastern North Dakota. Scab is present, but does not look as if it would cause much damage at Fargo and north. The fields in an area 30 miles south of Grand Forks look good and good crops also are reported north of Crookston. South of Crookston, there was so much rain early in the spring that many people did not get all their grain sown. Later rains caused much damage to the fields, stands are poor, and grain is late, much of it being drowned out in the lower spots. This area extends from Crookston to Beltrami. Near Ada, Minn., 35 miles south of Crookston, crops looked better but a severe rain and windstorm caused the grain to lodge when many of the fields were ready to harvest or were partly harvested.

Corn and flax look good over the entire State, although corn will need rain in the near future in many areas.

Rainfall at University Farm during July was 1.7 inches, with a maximum temperature of 100°, recorded on July 24. The minimum temperature was 45°, recorded on July 12.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Aug. 1)

The harvest period in western Oklahoma and in the Panhandle of Texas for 1941 was wetter than usual and much wheat was discolored as a result of frequent showers. Test weights generally were low. Wheat in western Oklahoma was spotted and all degrees of lodging were evident in various areas. Wheat yields varied from practical failures to well over thirty bushels per acre. The yields from most counties in western Oklahoma will be above average but below earlier expectations. Binders were a common sight during harvest this year, owing to the unusually rank growth, lodging, and presence of weeds in fields where harvest was delayed by rains or shortage of combines. Approximately 15 percent of the wheat in the county was cut with binders this year, which is appreciably more than usual.

Winter wheat yields on the Station varied from slightly over 8 bushels to 55 bushels per acre. Agronomic and yield data on varieties in plots and in the nursery are as follows:

Average agronomic data for winter wheat varieties grown in quadruplicated 1/47-acre plots at the Woodward Field Station, 1940-41.

Seeded Oct. 8, 1940 Emerged Oct. 13, 1940

Variety	C. I. or hybrid no.	Date First headed	Date Ripe	Hgt.	Lodging	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
		May	June	In.	Pct.		
Hard Red Winter:							
Tenmarq x Kawvale	11956	13	17	43	20	42.9	60
Kawvale x Tenmarq	11669	10	16	42	35	42.7	61
Tenmarq x Nebr. 28	11847	11	15	49	25	39.8	60
Tenmarq	6936	13	16	47	35	38.8	60
Oro x Tenmarq	11673	9	16	45	40	38.8	61
Quivira	8886	9	14	47	41	38.4	61
Cheyenne x Early Blackhull Wd.	1126	6	12	42	45	37.2 1/	61
Blackhull x Oro	11961	13	16	46	51	32.5	60
Cheyenne x Early Blackhull Wd.	1127	5	11	42	60	31.3 1/	61
Cheyenne	8885	16	17	42	29	30.4	59
Chiefkan	11754	13	16	47	47	30.2	61
Early Blackhull	8856	2	10	43	35	29.4	61
Blackhull	6251	13	16	48	50	29.0	60
Turkey	1558	16	16	46	36	28.4	55
Kanred	5146	15	16	45	44	24.9	57
Kharkof	1442	16	17	43	44	24.1	59
Soft Red Winter:							
Kawvale	8180	15	16	46	40	38.8	60

1/ Owing to shortage of seed, only two plots of these hybrids were grown.

Average agronomic and yield data on winter wheat varieties grown in the uniform yield nursery in quadruplicated 3-rod row plots at the Woodward Field Station, 1940-41.

Seeded Oct. 7, 1940 — Emerged Oct. 12, 1940

Variety	C.I. or hybrid no.	Date First headed	Date Ripe	Hgt.	Lodging	Yield Bu. per acre	Test weight (Lbs. per bu.)
		May	June	In.	Pct.		
Early Blackhull x Tenmarq	11952	11	15	50	34	53.7	63
Cheyenne x Tenmarq	11972	14	14	49	34	50.9	59
Kanred-Hard Fed. 142 x Tenmarq	12105	5	12	51	39	49.3	62
Cheyenne x Tenmarq	12103	12	16	49	24	49.1	61
Do	12104	8	14	49	50	47.9	61
Kawvale x Tenmarq	11669	10	14	48	51	47.3	61
Kanred-Hard Federation x Tenmarq	11974	9	14	50	29	45.2	58
Blackhullx Tenmarq	12102	11	15	51	4	44.7	61
Kanred-Hard Fed. 25007 x Tenmarq	12106	8	13	50	53	44.6	60
Kawvale x Tenmarq	11992	10	14	50	46	43.3	60
Do	11956	14	15	49	48	42.7	61
Blackhull x Cheyenne	12101	13	16	47	18	42.6	59
Kanred x Blackhull	11844	12	17	49	40	42.1	59
Cheyenne x Tenmarq	11973	10	15	49	45	39.9	60
Early Blackhull	8856	2	10	49	20	39.6	61
Kawvale x Tenmarq	11950	9	15	51	54	39.6	60
Oro x Tenmarq	11673	9	13	50	49	39.4	59
Cheyenne x Early Blackhull	Wd. 1126	12	16	48	31	37.9	60
Hope x Turkey	11964	9	13	46	39	37.6	59
Martin x Tenmarq	11823	14	16	48	30	37.2	55
(Kanred-Hard Fed.) x (Mihardi-Minturki)	11970	10	16	53	25	35.6	58
Fort Collins selection	11971	12	16	49	11	34.2	59
Blackhull	6251	12	16	49	24	32.6	61
Kharkof	1442	15	17	49	41	32.6	57
Kanred x Hope-Hard Federation	11975	9	16	48	29	30.2	56
Kanred x Hope	11976	13	16	46	13	28.8	46
Nebred	10094	14	15	47	31	27.1	58
Cheyenne x Early Blackhull	Wd. 1127	4	11	50	55	26.2	60
Kan.-Web. x Kan. x (Hard Fed.-Marquis x Marquis) 1/	11977	15	18	46	9	24.8	56
Hope x Cheyenne	11969	14	16	45	50	24.7	59

1/ Kanred-Webster x Kanred x (Hard Federation-Marquis x Marquis).

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (July 31)

Harvesting, threshing, and recleaning of the small grain cereals have been completed for the season.

The following yields of winter wheat were secured for 1941:

Variety	C. I. no.	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Kawvale x Tenmarq	11669	42.8	64
Oro x Tenmarq	11673	40.6	63
Cheyenne x Tenmarq	11972	40.2	62
Do	11973	37.1	63
Oro x Tenmarq	11672	36.9	63
Early Blackhull hybrid	11846	36.5	62
Early Blackhull x Tenmarq	11952	36.5	62
Chiefkan	11754	35.0	65
Tenmarq	6936	35.0	61.5
Early Blackhull	8856	33.8	62
Red Chief	12109	33.0	66
Oro	8220	26.3	61
Nebred	10094	25.9	61
Cheyenne	8885	25.4	61
Kanred	5146	25.1	61
Kharkof	1442	24.9	60
Blackhull	6251	23.6	61
Turkey	1558	21.8	60
Blackhull selection H.C. 369	----	17.5	60

Protein determinations made locally showed 14.2 percent for Early Blackhull, 13.9 percent for Chiefkan, and 14.3 percent for Tenmarq.

Seldom has a wheat crop in this area been subjected to so many extreme conditions in 1941. Extremely low temperatures occurred early in November, followed by excessive rainfall during the winter and early spring months which induced tall rank growth and wet-weather diseases. Leaf rust was highly prevalent, but stem rust only a minor factor except for extremely late-sown wheat.

The month of July was far below normal for moisture, and row crops are beginning to suffer in the immediate vicinity of Hays. In northwestern Kansas flood conditions and excessive rainfall have occurred, considerably delaying the harvesting and threshing of the small grains. This climatic situation is rather unusual and an exception to the general trend of the weather.

The sorghums at Hays are heading unusually early. The plants are greatly restricted as to height. The crop appears to be making its growth on stored moisture.

P. V. Cardon was a recent visitor at this Station.

NEBRASKA

AGRICULTURAL EXPERIMENT STATION, LINCOLN (Wheat Improvement, K. S. Quisenberry) [Aug. 1]

Average yield and test weight of winter wheat varieties grown in five 1/40-acre plots, Lincoln, Nebr., 1941.

Variety	Number C. I.	Number State	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
Kawvale x Tenmarq	11992	Nebr. 1114	30.6	58.7
Do	11669	Nebr. 1086	29.8	60.4
Do	-----	Nebr. sel. 23867	29.7	60.0
Do	-----	Nebr. 1104	27.8	60.2
Do	-----	Nebr. sel. 23819	27.4	59.3
Do	-----	Nebr. 1113	27.1	60.2
Minturki x Blackhull	-----	Nebr. sel. 31A-899	25.3	61.8
Kanred x Blackhull	11844	Nebr. 1098	23.8	60.3
Iobred selection	11997	Iowa 2473	22.6	60.4
Nebred	10094	Nebr. 1063	20.7	60.2
Cheyenne selection	11666	Nebr. 1087	20.0	59.8
Chiefkan	11754	Nebr. 1100	19.2	61.1
Hope x Turkey	11964	----------	19.0	59.5
Iobred	6934	Nebr. 1023	18.9	62.0
Clarkan	8858	Nebr. 1084	18.8	60.3
Cheyenne	8695	Nebr. 1050	18.4	59.3
Cheyenne x Tenmarq	11972	Kans. 2748	17.8	58.4
Do	12103	Kans. 2749	17.8	60.0
Turkey selection	11577	Nebr. 1081	17.3	57.9
Cheyenne x Tenmarq	11973	Kans. 2751	16.3	59.8
Nebraska No. 60	6250	Nebr. 60	16.2	58.2
Blackhull	6251	Nebr. 1004	15.9	58.6
Turkey	-----	Nebr. 312	15.7	58.7
Cheyenne x Tenmarq	12104	Kans. 2750	15.6	59.7
Turkey	-----	Nebr. 1	15.4	58.5
Oro x Turkey	11673	Nebr. 1101	15.2	57.2
Tenmarq	6936	Nebr. 1030	15.1	57.2
Kharkof	1442	Nebr. 1010	11.6	56.3

Average yield and test weight of spring wheat varieties grown in three 1/40-acre plots, Lincoln, Nebr., 1941.

Variety	C. I. no.	Nebr. no.	Yield (Bu. per acre)	Test weight (Lbs per bu.)
Kearney	6585	1009	13.8	58.7
Mindum	5296	1080	10.2	56.3
Premier	11940	1111	5.7	54.3
Mercury	11872	1110	5.3	53.7
Reward	8182	1073	4.4	58.5
Pilot 13	11945	-----	4.1	51.5
Rival	11708	1108	3.7	51.7
Renown	11947	1112	3.0	51.2
Merit	11870	1109	2.2	51.0
Thatcher	10003	1106	2.0	53.5
Marquis	3641	1001	1.8	52.3
Ceres	6900	1028	0.8	59.0

Average yield and test weight of oat varieties grown in five 1/40-acre plots, Lincoln, Nebr., 1941.

Variety	Number		Yield	Test weight
	C. I.	Nebr.	(Bu. per acre)	(Lbs. per bu.)
Victoria x Richland	3314	549	68.3	33.1
Richland x Fulghum	3486	---	66.6	32.7
Victoria x Richland	3313	542	65.2	32.4
Do	3302	544	64.6	33.3
Tama	3502	---	64.2	32.8
Richland x Fulghum	3487	---	63.6	33.9
Brunker	2054	535	63.0	31.0
Victoria x Richland	3310	548	62.9	32.0
Boone	3305	553	62.6	32.7
Columbia	2820	538	61.5	30.8
Otoe	2886	518	60.8	30.4
Fultex	3531	---	60.1	32.2
Marion	3247	547	59.7	33.5
Fulton	3327	550	59.7	30.0
Fulghum (Coker No. 3)	3666	539	59.5	29.0
Burt	1222	503	57.0	30.8
Trojan	2491	552	55.6	29.6
Kherson (Nebr. 5)	----	505	53.7	27.8
Kanota	839	508	53.5	30.0
Hancock	3346	554	52.2	33.4
Kherson (Nebr. 21)	841	504	51.7	27.4
Rainbow	2345	551	50.4	28.3
Iogold	2329	512	50.0	27.2
Kherson (common)	----	501	47.3	25.4

Average yield and test weight of barley varieties grown in four 1/40-acre plots, Lincoln, Nebr., 1941.

Variety	Number		Yield	Test weight
	C. I.	Nebr.	(Bu. per acre)	(Lbs. per bu.)
Ezond	6265	115	29.2	42.6
Short Comfort	5907	104	25.3	43.8
Trebi x Velvet sel. 4 (Mont. 1621)	~~6353~~	125	25.2	42.9
Spartan	5027	111	24.4	49.0
Lico	6279	128	24.1	40.6
Velvon	6109	127	24.0	42.4
Club Mariout	261	121	22.9	41.6
North Platte No. 1	5266	116	22.2	40.1
Flynn	5911	107	21.4	43.1
Trebi	936	105	20.5	38.8
Wisconsin Pedigree 38	5105	119	16.9	40.5
Beecher	6566	130	16.8	42.0
Atlas x Vaughn (Moscow sel. 1)	----	129	15.4	43.0
Manchuria	2947	123	14.4	41.1
Minnesota No. 184	2330	102	12.5	40.1

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 1)

Harvest is well along at the Substation and in the vicinity. Binders have been operating for some time and combines started work this week. Oat and barley varieties in plots and nursery, as well as winter wheat and rye, have been cut. Part of the spring wheat has been harvested. Part of the cereal nursery was destroyed by hail and not considered worth cutting.

Grain yields in the county and district, where not injured by hail, probably will be the best in years. Grasshoppers and stem rust are more in evidence than two weeks ago, and leaf rust is thicker than for several years. Probably no serious damage will result from these.

Detailed notes on leaf and stem rust and on hail injury have been taken on all varieties and strains, whether they are to be harvested or not.

Hot weather during the latter half of July hastened the growth of corn and sorghum varieties which are now in good condition despite hail injury.

The maximum temperature for July was 96° recorded on the 26th and the minimum, 43° on the 14th. The precipitation for July was 3.73 inches, making a total of 22.03 inches for 1941 to date. The record annual precipitation for Dickinson was 22.74 inches in 1914.

Official visitors from the Cereal Division during the month were S. C. Salmon, K. S. Quisenberry, J. A. Clark, T. R. Stanton, and Roderick Sprague.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (July 31)

Temperatures for the first two weeks of July at Fargo were about normal, but temperatures the last ten days have ranged above 90° nearly every day, with a maximum of 104°. Precipitation for July has been less than half normal. This has resulted in considerable damage to the crop which had tillered heavily with excessive June rains. Varieties susceptible to leaf rust have suffered especially. Scab is more severe than usual. Stem rust damage is possible in the durums, but probably will not be noticeable commercially.

Harvesting of Dr. Waldron's common wheat nursery and the oat nursery is well under way. The durum nursery at Fargo will be ripe next week.

The Langdon nursery and plots are in excellent condition, although heat the last few days has probably prevented any phenomenal yields or test weights.

Very useful notes on lodging are being taken at both Stations.

Officials visitors this month have been J. A. Clark, T. R. Stanton, S. C. Salmon, K. S. Quisenberry, E. R. Ausemus, A. C. Dillman, A. H. Moseman, Roderick Sprague, A. G. Johnson, and M. N. Levine.

MONTANA

AGRICULTURAL EXPERIMENT STATION, BOZEMAN (Wheat Improvement, R. H. Bamberg) (Aug. 1)

Harvesting of winter wheat is well under way throughout the State and is beginning in spring wheat in several areas. At Bozeman the winter wheat nursery and plots are ready to cut and the spring wheats are in the medium-dough stage. There are no diseases of importance except mildew which is severe. There is a light infection of leaf rust and a trace of stem rust which may develop within the four weeks before harvest. At Moccasin all of the winter wheat and most of the barley and oats have been cut. The earlier spring wheats are about ready.

Winter wheat is heavy and yielding well all over the State, many yields reaching 35 and 40 bushels. Spring wheat is more spotted, some areas being damaged by heat; but the grain is very plump. Not enough has been harvested to indicate yields.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Aug. 1)

Weather conditions throughout the State have been unusually favorable for the growth of crops. Winter wheat yields are among the best obtained in a number of years. Yields of 35 to 45 bushels per acre on the dry farms are not uncommon.

Spring grain, although making excellent vegetative growth, have become infected with stem rust, leaf rust, and stripe rust. The black stem rust is doing the most damage in the vicinity of the experiment station. Farther north some fields appear to be defoliated by stripe rust.. In the uniform spring wheat nursery, a number of the varieties have been prematurely ripened by black stem rust, and the grain is likely to have a rather low test weight. Most of the winter wheat nurseries have been harvested and threshed. The spring barley has been cut and the oats are nearing the ripening stage.

Very little extremely hot weather has prevailed in this State. Frequent showers have kept the vegetation in much better condition than usual.

A mean temperature of 69.8° F. was recorded for July, with a maximum of 96° recorded on July 7 and 8. Precipitation totaled 0.81 inch and evaporation 5.75 inches for the month.

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Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 August 25, 1941 No. 13

Personnel (Aug. 11 - 25) and Field Station (Aug. 1 - 15)

PERSONNEL ITEMS

Mr. R. C. Eckhardt was in Washington on August 16 conferring with Department officials regarding cooperative corn improvement research.

Dr. Charlotte Elliott spent August 22 at Arendtsville, Pa., taking notes on corn experiments and collecting insect specimens. She will leave tonight, August 25, for New York State to take notes on corn experiments and to collect insect vectors.

Mr. Jenkin W. Jones left Washington on August 18 for the rice-producing States of South Carolina, Georgia, Florida, Alabama, Louisiana, Texas, Arkansas, California, and Missouri to study methods of culture and areas in which upland rice is grown in the South Atlantic and the Gulf Coast States, and to inspect cooperative experiments with rice. He will make crosses and selections, study hybrid material, and confer with officials of the State agricultural experiment stations regarding rice production and improvement.

Mr. R. W. Leukel will leave Washington soon for points in Kansas, Oklahoma, Texas, Colorado, and Nebraska to study diseases of sorghums.

Dr. J. H. Martin returned to Washington August 24 from a week's visit in Georgia and Florida where he took notes on sorghum varieties and hybrids. He will leave on August 26 for about a month's trip through Iowa, Nebraska, Illinois, Kansas, Oklahoma, Texas, New Mexico, Colorado, North Dakota, South Dakota, and Wyoming where he will confer with Department and State agricultural experiment station officials regarding sorghum improvement and observe sorghum experiments.

Mr. T. R. Stanton returned to the Division on August 25, and reports that crops appear to be good generally throughout the country. During his travels, at the time the oats were mature or approaching maturity, he visited stations in New Jersey, New York, Pennsylvania, Indiana, Illinois, Iowa, Michigan, Wisconsin, Minnesota, the Dakotas, Montana, and Idaho. On his return trip to Washington, he also stopped at Manhattan and Lawrence, Kans., and again visited the Iowa Agricultural Experiment Station at Ames.

At Lafayette, Ind., some of the selections from the cross (Victoria x Richland) x Bannock and new varieties such as Boone, Tama, and Marion were among those that appeared to be very promising.

At Urbana, Ill., Selection 1335-3 (C.I. 3971) from the D69 x Bond cross was standing very well, whereas oats in adjoining plots were virtually 100 percent lodged.

Unfortunately, a severe hailstorm seriously damaged the varieties and selections which were being grown in the extensive oat breeding nursery at Ames, Iowa. As this nursery included many new plot technique designs to which a great deal of time and study had been given, the damage caused by the hailstorm was really serious. It was decided that it would not be advisable to harvest many of these strains except certain ones for seed purposes.

At Kanawha, Iowa, conditions were more favorable although crown rust was very prevalent. The new varieties Boone, Control, Tama, and Marion were outstanding. At present there is a great deal of interest in obtaining seed of these new varieties for sowing next spring in Iowa. It is anticipated that all available seed of them would be exhausted by October 1. It appears that the average yield of these new varieties is running about 15 bushels per acre above that of old standard varieties such as Iogold and Richland which lack resistance to crown rust.

At Brookings, the yields of the South Dakota improved varieties, such as Miomark, Nakota, and No. 334, were being reduced by the attacks of crown rust. Varieties such as Boone, Tama, and Vicland, as well as certain selections from the D69 x Bond cross, were among the most promising.

In Wisconsin, Vicland was attracting much attention. For the first time, some stem rust was reported as occurring on plants of Vicland. It is very probable that this rust was caused by Race 8, which heretofore has not been particularly destructive in the North Central States.

At St. Paul, Minn., certain selections from crosses of Bond on Anthony, Rainbow, Double Cross, etc., were looking very promising. Some of the selections from Bond crosses seemed to be producing many secondary tillers. This observation has been made on selections from Bond crosses at a number of stations, especially where considerable wet weather and lodging have occurred during the period between heading and ripening. However, some of these selections will produce very high yields of oats of excellent quality.

At Fargo, N. Dak., selections from the Markton x Rainbow cross and from certain double crosses appeared to include some promising disease-resistant lines. Crown rust was very prevalent, and it was possible to definitely eliminate susceptible material.

At Dickinson, N. Dak., hail seriously damaged all nursery and field plots.

At Bozeman, Mont., varieties such as Victory, Bannock, Colorado 37, as well as certain selections from the Markton x Victory cross, were among the most promising. One of these selections has been named Bridger (C.I. 2611) and will probably be increased and distributed for growing on irrigated farms. Bridger appears to be one of the most vigorous selections from this cross. It has a very tall, stiff straw, and so far has been near the top in yield. It is susceptible to the specialized races of Ustilago avenae which occur in Utah and Colorado. However, these races may not become prevalent in Montana for many years.

At Aberdeen, Idaho, much valuable information was obtained on hundreds of varieties and new selections of oats grown in special identification, classification, and viability nurseries. Some new oat crosses also were made. Bannock, which was distributed from that station a few years ago, appears to be giving a good account of itself on farms in that section. As yet no other strain on the Aberdeen Substation has been sufficiently superior in yield to warrant distribution to replace Bannock. However, one selection, C.I. 3976, may ultimately prove to be a higher yielder.

At Manhattan, Kans., excellent yields were obtained from certain new selections, particularly those with C.I. numbers 3983, 3984, and 3991, which were grown in the so-called uniform red-oat experiment at Manhattan. Several of these exceeded Fulton, one of the standard varieties for Kansas, in yield by about 7 bushels to the acre. During the past two years much progress has been made in the development of adapted early strains of oats resistant to crown and stem rust and to smut.

The processing plant of the Cerophyl Laboratories, Inc., located at Midland, Kans., about four miles north of Lawrence, was visited. At that time young alfalfa was being processed. A field of Kanota oats had

been sown on August 17, which, according to W. H. Allison, in charge of field operations at Midland, would be clipped about one month later for processing. About two weeks later another clipping would be made, and if frost stayed away a third clipping would be made another two weeks later. It appears from tests at the Laboratories that the young oat plant contains more of the so-called grass juice factor than is found in the other grasses. The Cerophyl Corporation now has plants located at Wallaceburg, Ontario, Canada; Lawrence, Kans.; and Elsa, Tex. Mr. Allison is planning to test as many varieties and selections of oats as possible for processing. He is especially interested in obtaining strains that will produce a heavy, early growth and will stand clipping. Mr. Allison has requested seed from the Department and also from a number of experiment stations.

Huron oats was found to be well adapted to Michigan conditions although this year it, together with other susceptible oats, was showing some crown-rust infection. About 40,000 bushels of Huron oats were distributed in Michigan in the spring of 1941. At East Lansing, Mich., it is planned to cross Huron on some of the better selections from the D69 x Bond cross. It appears that Boone and Marion are too early for Michigan. Most of the disease resistant selections forwarded from this Division last spring seem to be too early and short for East Lansing, at least under the conditions which prevailed this year.

At Ithaca, N. Y., some of the new smut-resistant selections in which Cornellian, Ithacan, and Lenroc have been used as parents appeared to be outstanding. A number of rust resistant selections from certain crosses forwarded from this Division also were of considerable promise. At Ithaca, there is undoubtedly a need for the transferring of crown and stem rust resistance to varietal types such as Cornellian and Lenroc. Yorkwin winter wheat was showing up well and gives promise of being one of the best varieties yet developed at Ithaca. A field plot of the so-called "double rye" was inspected. Dr. Love is of the opinion that the yield of this large seeded rye can be stepped up by selecting for greater fertility.

At New Brunswick, N. J., certain new selections forwarded to that station from this Division last spring were attracting interest.

At State College, Pa., the standard improved varieties such as Patterson and Keystone were among the best in the yield test nursery. However, some of the new disease resistant varieties such as Boone, Vicland, and Marion will yield well this year. Considerable crown rust was prevalent at State College, and this probably affected the yield more than is generally realized.

Mr. J. W. Taylor left Washington on August 20 for a 3 days' trip to Vermont and New Hampshire to inspect experiments and confer with agricultural experiment station officials regarding barley and rye research.

RECENT PUBLICATIONS

A. L. Bakke. The Use of Tetrachlorethane in the Eradication of the European Bindweed. Amer. Soc. Agron. Jour. 33(8): 759-761. August 1941. (Cooperative investigations between the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

A. T. Bartel. Green Seed in Immature Small Grains and Their Relation to Germination. Amer. Soc. Agron. Jour. 33(8): 732-738, fig. 1. August 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Arizona Agricultural Experiment Station.)

J. Mitchell Jenkins. Biennial Report of the Rice Experiment Station, Crowley, Louisiana, for the Years 1939-1940. In La. Agr. Expt. Sta. Bien. Rpt., pp. 1-20. [1941.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

N. E. Jodon. Advances toward New and Improved Rice Varieties. In La. Agr. Expt. Sta. Bien. Rpt. 1939-1940, pp. 20-24. [1941.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Louisiana Agricultural Experiment Station.)

R. G. Shands. Disease Resistance of Triticum timopheevi Transferred to Common Winter Wheat. Amer. Soc. Agron. Jour. 33(8): 709-712, fig. 1. August 1941. (Contribution from the Division of Cereal Crops and Diseases and the Wisconsin Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. 1224 August 22, 1941

To: Heads of Divisions, Bureau of Plant Industry

From: E. C. Auchter, Chief of Bureau

Subject: Employment of Unskilled Laborers under Letter of Authorization

Questions frequently arise regarding the employment of unskilled laborers under letter of authorization. It has been the studied policy of the Bureau to restrict employment under letter of authorization to the minimum practicable with due regard for the work to be performed.

Employment under letter of authorization should be restricted to temporary intermittent workers, and ordinarily to a maximum of 90 days in any one fiscal year. A careful check should be made to be sure the individual employed has not been working for some other branch of the Bureau or some other branch of the Department, as the 90 days permitted includes other Government service. Wherever the circumstances are such that a regular appointment can be made through the Washington office, and payment made on payrolls submitted through the usual channels, this method should be followed. Employment under letter of authorization must be definitely restricted to intermittent employment, and is authorized only when regular appointments are not practicable. It is preferred that employment of intermittent workers be made through appointment whenever practicable.

Under recent legislation by Congress, in general only citizens may be employed. The temporary employment of persons in the field for periods of less than 60 days is permitted, but should only be done when citizens are not available. Employment in excess of 60 days of a non-citizen will not be passed for payment. (See B.P.I. Memorandum No. 1209 to Heads of Divisions, dated June 23, 1941).

In all cases of employment under letter of authorization, the affidavit on subversive activities must accompany the voucher. (See B.P.I. Memorandum No. 1206 to Heads of Divisions, dated June 14, 1941).

/s/ E. C. Auchter

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Aug. 13)

A long period of hot dry weather in the vicinity of Manhattan was broken by a series of rains beginning on August 11 and continuing until today. No good soaking rain fell here from June 9 to August 11 and no rain of much importance fell after June 13. The total rainfall for July was only about 2 inches--only about half the normal amount, but the 1.94 inches that have fallen in the last three days promises a better record for August.

The shortage of rain has been accompanied by very high temperatures, especially during August. A maximum of 104° F. was reached on August 11. Rainfall in the last few days has been accompanied by much cooler weather.

The long period of drought and heat was very severe on vegetation in this locality. Crops, pastures, lawns, and even roadside weed patches were brown and dry. This condition apparently is more marked near Manhattan than in most other parts of the State. Local rains fell in many parts of Kansas during the period of drought here. On a trip to Ft. Collins, Colo., on July 22-24 the writer noted that crops and other vegetation looked greener and better in western Kansas and eastern Colorado than they did in central Kansas.

Land for the 1942 rust nursery was plowed on July 16 but has been too dry to work since then. Until now it has been too dry and hot for the development of volunteer cereals. Therefore, no cereal rust of any kind has been seen since harvest.

All grain from the 1941 wheat and oat rust nurseries has been threshed and the grain notes now are being taken. Preparations for sowing the 1942 rust nurseries are under way.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Aug. 18)

The threshing of the cereal nursery was completed last week and the last of the harvested plots were threshed this morning. Flax varieties are approximately ripe and will be harvested soon. The main nursery of spring wheat varieties was injured so badly by the hailstorm of July 9 that only certain varieties were harvested for possible use for seed next year. The portion not harvested included the uniform regional and intrastate nurseries.

Harvesting with combines in this region is well along. Yields of spring wheat are generally high with yields in favored localities exceeding 40 bushels per acre being reported. The quality of the grain not damaged by hail is good with test weights around 60 bushels per acre. Yields of oats and barley also are good with seed of good quality.

Yields from the varietal plots and nursery were low due to severe injury by hail but the test weights are better than average in most varieties.

The weather this month has been mostly dry and favorable to threshing operations.

UNITED STATES NORTHERN GREAT PLAINS FIELD STATION, MANDAN (Cereal and Grass Footrots, Roderick Sprague) (Aug. 12)

Field notes and data on rootrot of cereals and grasses have been obtained at McCanna, Mandan, Dickinson, Williston, Fargo, and Langdon, N. Dak. A general survey was made throughout the State. Rootrot in cereals was somewhat less severe than in 1940, with Helminthosporium definitely less serious. Root browning (Pythium arrhenomanes) was more widespread and is definitely a serious factor in the common rootrot complex as well as being one of the primary organisms involved in the grass seedling blight problem.

Our isolations again show that Fusarium equiseti, F. scirpi var acuminatum (the pink Fusarium), and F. oxysporum are by far the most common Fusaria, and that F. graminearum and F. culmorum are virtually non-existent on small grains and grasses in the area from February until August.

A trip was made to Saskatoon, Saskatchewan, Canada, on August 2 to 10. The wheat crop is excellent as far north as a line slightly north of Regina, but north of there the crop is badly damaged by drought and by such insects as sawfly. One field near Chamberlain, Sask., must have had 60 percent of the culms cut off by this insect. Five days were spent at the University of Saskatchewan with T. C. Vanterpool determining Pythium species isolated from grasses and cereals in North Dakota. His long experience with the genus under conditions not greatly different from those encountered in North Dakota proved of invaluable aid.

While at Saskatoon the Dominion Laboratory of Plant Pathology was visited and conferences held with P. M. Simmonds, R. C. Russell, and B. J. Sallans.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 September 10, 1941 No. 14

Personnel (Aug. 26 - Sept. 10) and Field Station (Aug. 16 - 31)

PERSONNEL ITEMS

Dr. B. B. Bayles left Washington September 7 to attend a Corn Improvement Conference to be held at Urbana and Peoria, Ill., September 8 to 10.

Mr. Edward P. Carter was in Baltimore September 4 obtaining samples of wheat in commercial storage for a study of "sick" wheat. He will leave Washington on September 11 for a continuation of this study at Toledo, Ohio, Ames, Iowa, and Hutchison, Kans.

Dr. Charlotte Elliott was in Virginia September 2 and 3 inspecting corn infected with stalk rot.

RECENT PUBLICATIONS

H. M. Beachell, R. H. Wyche, and E. C. Tullis. Rice Investigations. Variety Tests, Rice Breeding, and Diseases of Rice. In Tex. Agr. Expt. Sta. Fifty-Third Ann. Rpt.: 160-163. [1941.] (Cooperative investigations between the Texas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

P. E. Hoppe. Relative Prevalence and Geographic Distribution of Various Ear Rot Fungi in the 1940 Corn Crop. U. S. Dept. Agr., Bur. Plant Indus. Plant Dis. Rptr. 25(6): 148-152. April 1941.

Glenn S. Smith. Report of 1940 Durum Cooperative Nurseries. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 6 pp. August 1, 1941. [Mimeographed.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

COMPTROLLER GENERAL OF THE UNITED STATES

Washington

A-51607
A-49009

August 15, 1941

CERTIFICATE BY CONTRACTORS AND VENDORS IN SUPPORT OF INVOICES OR PUBLIC VOUCHERS FOR PURCHASES AND SERVICES OTHER THAN PERSONAL, STANDARD FORM NO. 1034-REVISED (GENERAL REGULATIONS NO. 51 AND SUPPLEMENTS THERETO AND CIRCULAR LETTERS OF APRIL 2 AND JUNE 2, 1938)

To the Heads of Departments, Independent Establishments, and Others Concerned:

1. In the interest of uniformity and simplicity in the preparation of vouchers and invoices, the vendor's general certificate now appearing on Standard Form No. 1034-Revised has been amended to read as follows:

> I certify that the above bill is correct and just; that payment therefor has not been received; that all statutory requirements as to American production and labor standards and all conditions of purchase applicable to the transactions have been complied with; and that State or local sales taxes are not included in the amounts billed.

2. All certificates heretofore approved and authorized in circular letters of April 2 and June 2, 1938, are hereby revoked and the certificate above will be used in place of all others now required on Standard Form No. 1034-Revised or on a vendor's bill of sale or invoice.

3. As all vendors dealing with the Government are charged with knowledge of all laws or regulations and of stipulations in contracts, agreements, etc., the use of the general certificate (quoted above) on the vendor's invoice or payment voucher will be acceptable.

4. On future reprints of Standard Form No. 1034-Revised the Public Printer has been requested to revise the vendor's certificate to conform to the certificate as set forth above. The Public Printer has also been authorized to completely exhaust the present supply of the voucher form prior to the issuance of the new forms.

5. To avoid unnecessary delay and confusion in the payment of vouchers otherwise properly prepared, it appears desirable that until such time as vendors and contractors have had ample opportunity to become acquainted with the above-prescribed certificate the various Government agencies and this office accept certifications that have heretofore been approved. However, if desired, the above certificate may be printed, stamped, typed, or written on the present supply of voucher forms on hand.

6. The prescribed certificate may be printed, stamped, typed, or written on vendor's bill of sale or invoice and must be signed (in original way) by the vendor or its duly authorized representative.

7. Under no conditions should the certificate on Government vouchers or on invoice forms to be attached to such vouchers be signed in blank or at any time prior to the submission of the voucher or invoice but only after delivery or performance by the claimant. To do so may result in the submission of a false claim against the Government for which the person signing the certificate may be held liable under the law.

8. Requests by the Federal Government for bids and the purchase orders issuing subsequent thereto should specify the applicable laws with which the prospective successful bidders will be required to comply. However, care must be exercised not to include citation to any law which is not applicable as such citation may tend to result in higher bids.

(Signed) LINDSAY C. WARREN

Comptroller General
of the United States.

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Sept. 9)

Weather conditions in August were about normal. The total precipitation for the month was 3.61 inches, which is 2.85 inches less than the 31-year average. The maximum temperature was 96°, the average maximum 92°, the minimum 69°, the average minimum 75°, and the average mean 84° F.

The harvesting of rice and cotton began on the Station in the latter part of August. The indications are that the rice yields will be the highest in several years. This is especially true of varieties in the increase plots.

Rice diseases are less than in any year since 1928. Most plants appear fully developed and normal.

The commercial rice harvest began in the first week of August. Rains the latter part of the month interfered with threshing. In general, the crop is good. However, because of frequent rains at the time of germination, many fields are heavily infested with red rice.

The annual Station Field Day was held on August 1. More than one hundred attended. The morning was devoted to field tours and the afternoon to a brief program. Addresses were made by Mayor Matt Buatt of Crowley; Major General C. B. Hodges, President of Louisiana State University; Mr. J. G. Lee, Dean of the College of Agriculture; Mr. H. C. Sanders, Acting Director of the Agricultural Extension Division; Mr. Tom Plunket, Chairman of the Louisiana Farm Council and Vice President of the Rice Growers Cooperative Association; and Mr. Arthur Gale, President of the Louisiana Cattlemen's Association.

Visitors in August included the following: Armando Calleja, J. Diaz, and Julio Sanchez of Cuba, and Maung Hpu of Rangoon, Burma.

Yields of winter wheat varieties grown in quadruplicated 1/44-acre plots at Texas Substation No. 6, Denton, Tex., 1941.

Variety	Number C. I.	Number T. S.	First head	Fully ripe	Plant height	Leaf rust	Stem rust	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
					In.	Pct.	Pct.		
Oro x Tenmarq selection	11673	24951	May 6	June 4	28	10	15	11.0	52.0
Kawvale x Tenmarq/35-34-117	11956	-----	May 8	June 3	27	T	5	8.6	51.0
Martin x Tenmarq[3/] 50-33-63	11805	-----	May 9	June 7	30	10	30	8.3	49.0
Kanred-Hard Federation x Tenmarq 33-34-303	12105	-----	May 4	June 5	30	T	35	7.9	51.0
Kanred-Hard Federation x Tenmarq 25-34-44	12106	-----	May 5	June 5	28	T	25	7.8	49.0
Tenmarq	6936	12578	May 10	June 7	30	20	20	7.4	49.0
Kawvale x Tenmarq	11669	26971	May 7	June 3	27	0	10	6.9	48.0
Early Blackhull	8856	15838	Apr. 28	May 31	30	40	T	6.6	56.0
Quivira	8886	15833	May 5	June 4	32	10	10	6.5	50.5
Blackhull	6251	7172	May 12	June 7	28	35	5	5.4	48.0
Hope x Mediterranean 41-16-3-3	-----	-----	May 12	June 8	29	0	0	5.3	45.0
Chiefkan	11754	23276	May 11	June 7	29	25	10	5.2	51.0
Kanred	5146	11763	May 13	June 12	28	40	10	4.8	46.0
Kawvale	8180	12577	May 11	June 7	29	T	10	4.8	45.0
Campbell Mediterranean	-----	23250	May 7	June 6	30	40	60	4.4	45.0
Mediterranean selection	10086	3015-81	May 8	June 4	29	10	60	3.8	46.0
Denton	8265	9236	May 12	June 6	33	8	70	3.4	43.0
Red May selection	-----	7250-1	May 6	June 1	27	15	60	3.4	41.0
Fulcaster	6271	7082	May 9	June 7	31	20	40	3.2	42.0
Clarkan	8858	20400	May 12	June 7	32	40	50	2.8	43.0
Kharkof	1442	16830	May 13	June 13	27	45	10	2.8	44.0

Yields of spring-sown oat varieties grown in quadruplicated plots at Texas Substation No. 6, Denton, Tex., 1941.

Variety	Number		Date		Plant height	Leaf rust	Stem rust	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
	C. I.	T. S.	First head	Fully ripe	In.	Pct.	Pct.		
Ferguson 922	2150	9400	May 10	June 4	30	50	5	53.7	25.0
New Nortex	3422	26155	May 10	June 4	30	50	5	51.7	26.0
Texas Red Rustproof	----	1415-12	May 10	June 4	29	50	5	46.8	25.0
Do	2503	1118-69	May 10	June 4	29	50	5	46.7	25.0
Nortex	2382	9235	May 10	June 4	29	30	5	43.0	25.0
Nortex x Victoria 11-35-41	3535	----	May 8	June30	27	5	10	39.7	27.0
Frazier	2381	9234	Apr.29	May 29	29	90	T	39.2	28.0
Appler x Bond 15-34-64	3536	----	May 8	June 2	27	0	5	39.1	27.0
Ranger	3417	----	May 8	June 4	28	10	10	36.4	28.0
Fultex	3531	----	May 5	June 1	26	5	5	35.8	30.0
Rustler	3754	----	May 7	June 2	28	10	10	33.4	26.0

Yields of fall-sown oat varieties grown in quadruplicated plots at Texas Substation No. 6, Denton, Tex., 1941.

Variety	Number		Date		Plant height	Leaf rust	Stem rust	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
	C. I.	T. S.	First head	Fully ripe	In.	Pct.	Pct.		
				May					
Ferguson 922	2150	9400	May 1	30	25	10	T	24.0	24.0
Texas Red Rustproof	----	1415-12	Apr. 30	30	25	10	T	22.8	25.0
Do	2503	1118-69	May 1	30	25	10	T	21.6	25.0
New Nortex	3422	26155	May 1	30	25	10	T	21.4	25.0
Nortex	2382	9235	May 1	30	24	10	T	20.7	25.0
Nortex x Victoria 11-35-41	3535	----	May 1	30	22	0	T	20.4	26.0
Appler x Bond 15-34-64	3536	----	May 1	30	19	0	T	15.6	26.0
Frazier	2381	9234	Apr. 16	19	24	45	T	13.6	27.0
Ranger	3417	----	May 1	30	23	0	T	13.4	25.0
Rustler	3754	----	Apr. 28	28	23	0	T	13.4	27.0
Fultex	3531	----	Apr. 24	25	18	0	T	10.7	29.0

Yields of fall-sown barley varieties grown in quadruplicated plots at Texas Substation No. 6, Denton, Tex., 1941.

Variety	Number C. I.	Number T. S.	Date First head	Date Fully ripe	Plant height	Yield (Bu. per acre)	Test weight (Lbs. per bu.)
				May	In.		
Texan	6499	28348	Apr. 24	22	15	15.5	39.0
Wintex	6127	23258	Apr. 29	24	15	12.1	38.0
Ferguson Texas Winter	6498	24933	Apr. 29	26	14	11.4	36.0
Tenkow	646	27016	Apr. 29	24	15	10.9	37.0
Harlan Hybrid 1-33-103	6502	------	Apr. 29	24	13	10.8	36.0
Bailey	5902	23241	Apr. 29	24	15	10.7	35.0
Harlan Hybrid 1-33-179	6500	------	Apr. 28	23	15	10.6	37.0
Tennessee Winter	3545	15826	Apr. 24	19	16	10.2	38.0
Do. (Winkelman)	6128	23259	May 1	26	14	9.6	36.0
Tennessee Winter	6125	15825	Apr. 24	19	19	9.2	38.0
Finley	5901	12576	May 1	26	13	9.1	35.0

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Sept.2)

Threshing of field plots and cereal nursery is completed except flax and grain sorghums. Considerable threshing remains to be done in this district. Showering weather during the latter part of August interfered with threshing and some fields still await the combine.

The cleaning and storing of grain from cereal varieties are about finished.

Most of the corn should be about ripe in another week. Early sorghum varieties are approaching maturity, but late varieties, such as Waconia and Early Sumac, are only beginning to head. The average date of the first killing frost September 14.

The precipitation for August was 1.58 inches, making 23.61 inches for 1941 to date. The maximum temperature for August and for the year was 104°. The minimum for August was 40°.

Because of the severe hailstorm of July 9 that destroyed by far the greater part of the crop, the threshed yields of varietal plots were very unsatisfactory but may be of some value in indicating relative resistance to hail. The hail occurred from 2 to 3 weeks after first heading, depending upon the earliness of the grain. Later varieties had more succulent straw and suffered more from breaking over of the heads while early varieties suffered more from shattering. The highest yields were less than 10 bushels for wheat, 30 for oats, and 5 for barley. Yields of 20 to 35 bushels of spring wheat and 50 to 100 bushels of oats have been reported from farmers' fields outside of the hailed area.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Sept. 2)

Nursery threshing at Fargo has been completed. The durum nursery ran higher in yield than was expected, individual rows yielding up to 45 bushels per acre. Most varieties were somewhat injured by heat; consequently, test weights as high as in 1940 are not expected.

Nursery threshing at Langdon is underway, and in general the grain is plumper than at Fargo. Langdon nursery threshing will not be completed for another week.

Stem rust injury on durums at both stations developed rapidly in the later stages of maturity. Ten days before ripening, it appeared that Mindum checks would read perhaps 25 percent for severity, but at Fargo final readings were 40 to 60 percent and at Langdon 50 to 70 percent. Injury will not be great for normal dates of seeding, but late seeded fields were seriously injured. The injury is believed not to be extensive enough to materially reduce the durum production figures.

Several wind and rain storms during the summer permitted numerous observations as to relative strength of straw and lodging of durum varieties.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Sept. 2)

The month of August has been unusually wet as compared to other years in this area. Although the total precipitation was only 1.70 inches, the humidity was constantly high and it was extremely difficult to dry grain sufficiently for threshing. Much of the later-maturing grain was badly discolored and shrunken.

As was reported previously, black stem rust appeared very early in July and conditions continued favorable for secondary infection throughout the State.

The cereal nursery was seeded by April 1, but even so, highly susceptible wheat varieties showed test weights as low as 54 pounds. Yields, however, were good. Barley varieties ranged from 50 to 126 bushels per acre, oats from 70 to 140, and wheat varieties from 36 to 73 bushels per acre. Some of the Hope x Federation strains were free from black stem rust, but had a trace of leaf rust. A few fields of late-planted spring wheat were so badly infested with rust that they will not be harvested. Barley and oat fields generally were heavily infested but showed less damage to the grain.

During the last 11 years, black stem rust has been serious in 4 years. This is the first season, however, that the black teliospore stage could be found readily. This black stage has developed throughout the valley in great abundance.

Hybrid corn varieties are quite generally grown throughout the State. They have made exceptionally good growth and appear to be making proper maturity for this time of year. No sign of red spider injury has been found thus far.

Preparation is now under way for seeding winter wheat nurseries. Moisture conditions appear favorable with continued cloudy weather prevailing.

The mean temperature for August was 67.4°, as compared to an 11-year mean of 68.7°. A maximum temperature of 94° was recorded on August 5, 7, and 8 after which time the average maximum temperature has been near 80°. A minimum of 38° was recorded on August 31.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 September 25, 1941 No. 15

Personnel (Sept. 11 - 15) and Field Station (Sept. 1 - 15)

PERSONNEL ITEMS

Mr. J. H. Kempton has returned from a four months' trip through Mexico and Central America. Accompanied by Mr. H. T. Edwards of the Division of Cotton and Other Fiber Crops and Diseases, an agricultural survey was made of Mexico for the purpose of determining whether certain crops now imported from the far East could be grown there. All the principal agricultural regions were visited, either by plane, train, auto, mule, or afoot. Upon completion of the Mexican survey, a similar one was made in Honduras, after which the party inspected the Abacá plantings of the United Fruit Company in Panama and the Goodyear rubber breeding project in Costa Rica.

Mr. Kempton is enthusiastic about Mexico and urges all members of Cereals who can possibly do so to plan to spend their vacations there. Because of the favorable rate of exchange-almost 5 for 1-travel is cheap. It costs no more to operate a car in Mexico than in the United States. Roads are excellent and all of the many interesting cities in the northern two-thirds of the country, any one of which is worthy of a week's stop, are accessible by car. Hotels are modern and sanitary, with excellent cuisines. No effort is spared to make travel easy and pleasant for North Americans. The mountainside farms of the Indians will fascinate the male members of Cereal's staff and appall those concerned with erosion. For the women there are innumerable handicraft products, not to mention those imported French perfumes.

Mr. L. W. Kephart was in New York and New Jersey September 18 to 20 inspecting experiments with chemical weed killers. On October 2 he will leave for North Carolina and Virginia to inspect control experiments on Bermuda grass and pasture weeds.

RECENT PUBLICATIONS

George M. Burkert and Allan D. Dickson. The Action of the Amylases of Two Barley Varieties on the Barley Starches. Cereal Chem. 18(5): 605-615, figs. 1-3. September 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the University of Wisconsin, Madison, Wisconsin.)

A. C. Dillman. Cold Tolerance in Flax. Amer. Soc. Agron. Jour. 33(9): 787-799, figs. 1-5. September 1941.

M. N. Pope. Artificially Induced Vivipary in Barley. Amer. Soc. Agron. Jour. 33(9): 850-851. September 1941.

Coit A. Suneson. Frost Injury to Cereals in the Heading Stage. Amer. Soc. Agron. Jour. 33(9): 829-834, figs. 1-2. September 1941. (Contribution from the Division of Cereal Crops and Diseases and the Department of Agronomy, University of California.)

C. A. Suneson, O. C. Riddle, and F. N. Briggs. Yields of Varieties of Wheat Derived by Backcrossing. Amer. Soc. Agron. Jour. 33(9): 835-840. September 1941. (Contribution from the Division of Cereal Crops and Diseases and the California, Colorado, Idaho, Montana, Oregon, Utah, and Washington Agricultural Experiment Stations.)

F. L. Timmons. Results of Bindweed Control Experiments at the Fort Hays Branch Station, Hays, Kansas, 1935 to 1940. Kans. Agr. Expt. Sta. Bul. 296, 50 pp. 9 figs. June 1941. (Cooperative investigations between the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

R. W. Woodward. Inheritance of a Melaninlike Pigment in the Glumes and Caryopses of Barley. Jour. Agr. Res. 63(1): 21-28, fig. 1. July 1, 1941. (G-1212) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Utah Agricultural Experiment Station.)

September 9, 1941

No. P - 179

MEMORANDUM FOR CHIEFS OF BUREAUS AND OFFICES

Subject: President's Proclamation of August 18, 1941

Attached is a copy of the President's proclamation of August 18, 1941, calling on the National Safety Council and on every citizen throughout the entire country, in public or private capacity, to enlist in a campaign of accident prevention.

The Department as a whole, as well as each individual employee, has a definite responsibility to "enlist in this campaign and do his part in preventing wastage of human and material resources of the Nation through accidents."

This office solicits suggestions for the improvement of our Safety Program.

/s/ Roy F. Hendrickson
Director of Personnel

Attachment

National Safety Campaign

By The President Of The United States Of America

A PROCLAMATION

The Nation is confronted with a rapidly rising accident toll. At the present rate, the total number of deaths from accidents this year will exceed 100,000. Traffic accidents alone caused 34,500 deaths in 1940, and thus far in the present year there has been an increase of seventeen per cent in traffic fatalities.

By taking a huge toll in life and property, accidents definitely hinder our national defense effort. To insure maximum efficiency we must have maximum safety twenty-four hours a day--not only at work, but also on the highway, at home, everywhere.

The troubled times in which we live must not make us callous or indifferent to human suffering. These unusual times require unusual safety efforts.

NOW, THEREFORE, I, FRANKLIN D. ROOSEVELT, President of the United States of America, do hereby call upon the officers and directors of the National Safety Council to mobilize its nation-wide resources in leading a concerted and intensified campaign against accidents, and do call upon every citizen, in public or private capacity, to enlist in this campaign and do his part in preventing wastage of human and material resources of the Nation through accidents.

IN WITNESS WHEREOF I have hereunto set my hand and caused the seal of the United States of America to be affixed.

DONE at the City of Washington this 18th day of August in the year of our Lord nineteen hundred and forty-one, and of the independence of the United States of America the one hundred and sixty-sixth.

(SEAL)

FRANKLIN D. ROOSEVELT

By the President:

CORDELL HULL,

Secretary of State.

(No. 2502)

(F. R. Doc. 41-6206; Filed, August 20, 1941; 10:28 a. m.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

NEBRASKA

NORTH PLATTE SUBSTATION, NORTH PLATTE (Orrin J. Webster) [Sept. 17]

Average yield per acre and weight per bushel of spring wheat varieties grown in 40th-acre plots on semi-fallow land at the North Platte Experimental Substation, 1941. Date seeded March 29, 1941.

Variety	C. I. no.	Weight (Lbs. per bu.)	Average yield (Bu. per acre)
Premier	11940	56.5	24.1
Mindum	5296	59.5	23.8
Reward	8182	57.5	23.3
Pilot-13	11935	53.0	23.2
Thatcher	10003	54.0	22.4
Mercury	11872	54.0	22.2
Rival	11708	54.0	21.8
Merit	11870	53.5	21.4
Ceres	6900	56.0	20.2
Java (Kearney)	8825	56.0	20.0
Renown	11947	54.5	17.8
Marquis	3641	52.5	14.7

Average yield per acre and weight per bushel of winter wheat varieties grown in 40th-acre plots, 2 on fallow and 2 on cornland, at the North Platte Experimental Substation, 1941. Date seeded Oct. 3, 1940.

Variety	C. I. no.	Weight (Lbs. per bu.)	Average yield (Bu. per acre)
Nebred	10094	55.5	19.5
Cheyenne selection	11666	55.5	18.4
Cheyenne	8885	56.0	17.6
Kanred x Blackhull	11844	54.0	16.3
Turkey Nebr. 1081	11577	53.0	16.2
Turkey	10016	54.0	15.9
Chiefkan	11754	57.5	15.2
Kanred	5146	54.5	14.9
Oro	8220	56.0	14.7
Kharkof	1442	55.5	14.4
Nebr. 60	6250	55.5	14.3
Turkey (local)	-----	54.0	12.7
North Platte 11	8884	55.0	12.4
Tenmarq	8936	54.0	11.1
Blackhull	6251	55.0	11.0
Comanche	11673	54.5	10.2
"Alton"	-----	53.5	9.5
Kawvale x Tenmarq	11669	55.0	9.1

Average acre yield and weight per bushel of oat varieties grown in 40th-acre plots on semi-fallow land at the North Platte Experimental Substation, 1941. Date seeded March 21, 1941.

Variety	C. I. no.	Weight (Lbs. per bu.)	Average yield (Bu. per acre)
Fulghum x Markton (Kans. 303572)	-----	37.5	61.7
Fulton	3327	33.5	59.4
Kanota	839	33.5	59.4
Fulghum HC 713	3228	33.0	59.2
Fulghum	708	35.0	58.9
Texas Red	2823	33.0	57.4
Brunker	2054	33.0	57.2
Trojan	2491	31.0	56.9
Markton x 60-day	2379	31.0	54.7
Nebr. 21	841	30.0	49.5
Otoe (Burt 518)	2886	31.0	49.4
Kherson	459	29.0	48.3
Iogold	2329	28.0	46.3

Average acre yield and weight per bushel of barley varieties grown in 40th-acre plots on semi-fallow land at the North Platte Experiment Substation, 1941. Date seeded March 30, 1941.

Variety	C. I. no.	Weight (Lbs. per bu.)	Average yield (Bu. per acre)
Blackhull selection	6009	48.0	61.7
Velvon	6109	43.5	60.9
Ezond	6265	44.0	59.2
Atlas	4118	44.0	58.5
Common 6-row	4640	42.0	57.4
North Platte No. 1	5266	42.5	56.9
Lico	6279	44.0	56.9
Sandrel	937	44.5	56.8
Trebi	936	43.5	55.3
McClymont	2126	42.0	54.0
Club Mariout	261	44.0	53.5
Beecher	6566	45.5	53.4
Flynn	5911	42.5	53.4
Spartan	5027	47.5	53.0
Short Comfort	5907	43.5	51.8
Tall Comfort	4578	44.0	38.5

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Sept. 16)

Wet weather continues to delay threshing in this region. With a considerable amount of threshing to be done yet, there have been but few days this month when it was dry enough to thresh. The precipitation for September to date has been 3.64 inches. A continuous drizzle on September 7 and 8 amounted to 2.61 inches, and an accompanying wind caused the corn and sorghum to lodge badly.

The heavy rain was followed by a killing frost on September 9 that put an end to much further growth and development in the corn and sorghums. These crops had been set back by the hailstorm of July 9. The early corn varieties were fairly well matured but late corn and nearly all of the sorghum varieties were still green when frost occurred. Apparently the grain sorghums will have very little seed matured enough to thresh.

The winter wheat nursery was seeded the last week in August. This emerged promptly and is now about 4 inches high and growing fast.

The maximum temperature in September was 88° on the 2d and the minimum, 29° on the 9th.

AGRICULTURAL EXPERIMENT STATION, STATE COLLEGE STATION, FARGO (Wheat Improvement, G. S. Smith) (Sept. 24)

Weather conditions have been very unsatisfactory for threshing operations in the durum wheat area. Precipitation was recorded at Langdon on 13 of the last 16 days of August, and during September over six inches of rain have fallen. As a result, less than 25 percent of the durum wheat crop was threshed under favorable conditions, and probably half of the crop will be a total loss, so far as marketable wheat is concerned. Sprouting is universal in windrows and shocks are still standing.

Potato growers in northeastern North Dakota also are viewing the weather with alarm, large acreages of level fields being too wet to get on.

Experimental material at Langdon was handled in fairly good shape. Wheat variety field plots were sprouted somewhat, the durums withstanding prolonged wetting better than the common wheats. However, the nursery material was well protected by being covered with paper bags on each bundle, and color of grain was little affected. On September 3 a very severe hailstorm occurred at Langdon, breaking 99 windows in the Langdon school building. Even under these conditions, only a few of the paper bags were torn open. Threshing at Langdon is now complete.

The first winter crop in the greenhouse is making good progress at Fargo.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 October 10, 1941 No. 16

Personnel (Sept. 26 - Oct. 10) and Field Station (Sept. 16 - 30)

PERSONNEL ITEM

Dr. M. A. McCall left Washington October 4 for Indiana, Ohio, Kansas, Minnesota, and Wisconsin to inspect cooperative cereal research projets and to confer with personnel of the Division and cooperating State agricultural experiment stations.

RECENT PUBLICATIONS

Donald H. Bowman. Tells How to Lessen Corn Ear Rot Damage. Ohio Agr. Expt. Sta. Weekly Press Bul. 26(30): 1. September 25, 1941. (Cooperative investigations between the Ohio Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

V. H. Morris, C. E. Bode, T. F. Hartsing, and H. K. Heizer. Third Annual Report of the Federal Soft Wheat Laboratory 1939 Crop. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 56 pp. August 25, 1941. [Mimeographed.] (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Oct. 1)

Weather conditions during September were favorable for the preparation of seedbeds for fall-sown grain. As a result of 5.36 inches of rainfall in August, the ground has ample moisture for the germination of volunteer grain. Weather during September was mostly clear, with only 1.50 inches of rain. Mean temperature was about normal with a maximum of 97° and a minimum of 51°.

During the month all seedbeds for grain were prepared and volunteer grain was killed on other land. Some seed of grain has started where the fields are to be pastured. Experimental grain for nursery and field plantings has been prepared and planting will start soon.

Corn harvest is completed with yields about average. Cotton picking is well advanced due to leaf worm damage which hastened the opening of the bolls. Yields of cotton are about average with some very good yields where the crop was not damaged by insects.

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Oct. 2)

A rain of nearly 1.75 inches during the closing days of September in the Hays territory and in general over the western part of the State improved conditions greatly for seeding winter wheat. For nearly two weeks previous to that time high winds, with rather high temperatures during the day, had reduced the surface moisture to a point where emergence of seeded wheat was greatly retarded. Both the plot and nursery seeding are emerging today with full stands and should go into winter under favorable conditions.

The early plantings of sorghums were considerably reduced in yield because of the drought in July and early August. The first date of May 19 planting has given yields of from 20 to 26 bushels. The second date cannot be harvested for yields because of poor stands. Yields for the third date will probably run between 30 and 40 bushels from present indications.

Weak neck and charcoal rot are again in evidence in the early plantings. Weak neck was first observed about September 5. It developed rather rapidly for a period of 10 days. The development was then retarded by the drier weather which prevailed until the closing days of September. Colby, Day, Cheyenne, and several other early types are among the most severely injured. Mr. R. W. Leukel, pathologist from the Division of Cereal Crops and Diseases, Washington, D. C., has set up a temporary laboratory at the Hays Station for a study of weak neck.

During the last two weeks approximately 250 farmers and visitors from various groups or organizations have inspected the work at the Hays Station. Official visitors who have recently visited the station are: Dr. J. H. Martin, Dr. H. H. Laude, Messrs. L. P. Reitz, L. E. Melchers, and Elmer Heyne. Messrs. R. A. Cushing, O. J. Webster, and Dr. Livingston from Nebraska were also visitors at Hays during the month.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Oct. 3)

Cloudy weather and frequent precipitation prevailed during most of September and permitted but a few days of threshing. Threshing at the Substation was completed in good season but, throughout this region, a part of the unusually heavy cereal crop remains to be threshed. Where the grain was well shocked only a minimum of injury occurred, but in some fields grain is said to be sprouting in the shock. A few scattering fields are yet to be combined. Threshing has been resumed this week after a few days of drying weather.

Precipitation for September amounted to 5.80 inches and that for the year to date totals 29.41 inches, or about twice the normal for the period.

Although the leaves of corn and sorghum were shredded by the hailstorm of July 9, these crops apparently recovered and were injured less than were the other cereal crops. The corn varieties have been husked and weighed, and the sorghum varieties cut and shocked.

The winter wheat nursery is making a vigorous growth and the winter plots are emerging.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Oct. 2)

Continued cool, cloudy weather with a number of light showers prevailed throughout September. Yet most of the dry land of northern Utah still remains too dry for the emergence of winter wheat. Only the surface inch was moistened by these light showers, and this moisture was dissipated quickly. Much of the commercial acreage as well as the regular winter wheat nurseries has been seeded. The seed probably will remain ungerminated until sufficient water falls to allow germination.

The corn harvest throughout the State has been practically completed. In four of the nurseries now harvested, U. S. Hybrid 52, holds first place in total green weight per acre. Data are not yet available from two of the main nurseries. Other promising hybrids in yield of total green crop are: Iowa 13, Utah Hybrid 544, and Funks G-8. Final yields, however, are determined by the total dry weight produced by the various hybrids.

A few barley varieties are being sown this fall in order to determine the relative resistance to winter-killing. A large acreage of winter barley, Winter Club and other common barley varieties, is grown in Utah from seeding rather late in the fall.

The first killing frost of any significance occurred on September 28, with a minimum of 24° F. Previous to that, freezing temperatures between 28° F and 32° F. were recorded on nine days of the month, but even the most tender plants failed to show any injury.

The mean temperature of September was 52.8°, as compared to 60.4° for a 11-year mean.

The total precipitation was 1.05 inches, as compared to 1.20 inches for a 11-year mean.

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CEREAL COURIER

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 October 25, 1941 No. 17

Personnel (Oct. 11 - 25) and Field Station (Oct. 1 - 15)

PERSONNEL ITEM

Mr. Tyler F. Hartsing arrived in Washington October 24 to confer with members of the milling and baking laboratory staff and members of the Division regarding milling problems of soft wheat.

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RECENT PUBLICATIONS

I. M. Atkins and H. O. Hill. Texan, A New Smooth Awn Barley Variety for the Central Texas Blacklands. Tex. Agr. Expt. Sta. 755 Progress Rpt. 2 pp. September 27, 1941. [Mimeographed.] (Cooperative investigations between the Texas Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

Donald H. Bowman. Tells How to Lessen Corn Ear Rot Damage. Weekly Press Bul. Ohio Agr. Expt. Sta. 26(30): 1. September 25, 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Ohio Agricultural Experiment Station.)

F. A. Coffman, H. B. Humphrey, and H. C. Murphy. New Red Oats for Fall Seeding Resistant to Rusts and Smuts. Amer. Soc. Agron. Jour. 33(10): 872-882, fig. 1. October 1941. (Contribution from the Division of Cereal Crops and Diseases and the Iowa Agricultural Experiment Station, cooperating.)

H. H. Flor. Pathogenicity of Aeciospores Obtained by Selfing and Crossing Known Physiologic Races of Melampsora lini. Phytopath. 31(9): 852-854. September 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the North Dakota Agricultural Experiment Station.)

E. W. Hanson and H. E. Milliron. The Relation of the Curculionid, Anacentrimus deplanatus, to Root Rot and Basal Stem Rot of Barnyard Grass, Echinochloa crusgalli. Phytopath. 31(9): 832-837, figs. 1-3. September 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture, and the Divisions of Plant Pathology and Botany, and Entomology and Economic Zoology of the Minnesota Agricultural Experiment Station.)

Jenkin W. Jones, J. Mitchell Jenkins, Martin Nelson, L. C. Carter, C. Roy Adair, R. H. Wyche, H. M. Beachell, L. L. Davis, and B. M. King. Rice Varieties and Their Comparative Yields in the United States. U. S. Dept. Agr. Cir. 612, 34 pp., 12 figs. September 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the Arkansas, Louisiana, Texas, California, and Missouri Agricultural Experiment Stations.)

Ralph O. Snelling. The Place and Methods of Breeding for Insect Resistance in Cultivated Plants. Jour. Econ. Ent. 34(3): 335-340. August 4, 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Illinois Agricultural Experiment Station, and the Illinois Natural History Survey.)

A. F. Swanson. Relation of Leaf Area to Grain Yield in Sorghum. Amer. Soc. Agron. Jour. 33(10): 908-914. October 1941. (Contribution from the Kansas Agricultural Experiment Station and the Division of Cereal Crops and Diseases, cooperating.)

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF PLANT INDUSTRY
Washington

Office of Chief of Bureau
B.P.I. Memo. 1236

October 15, 1941

MEMORANDUM FOR HEADS OF DIVISIONS

Re: Papers and Attendance American Association for the Advancement of Science Meetings, Dallas, Texas, December 29, 1941, to January 2, 1942

Abstracts: Abstracts of papers to be presented at the meetings should be submitted for approval as promptly as possible, as in many cases they must be in the hands of the secretaries of the various organizations the latter part of October or early November.

Complete Papers: Complete papers should be sent to this office for approval not later than December 10. Only in exceptional cases will papers submitted after December 20 be given approval.

Attendance: Recommendations for attendance by members of your staff must necessarily be considered in the light of Memorandum No. 885, dated January 7, 1941, and signed by the Acting Secretary (Mr. Appleby). In conformity with that memorandum, you are requested to submit recommendations for attendance in the following order:

On or before November 15 (Form AD-61): Recommendations for attendance at Government expense. "In general not more than three persons from one Bureau will be authorized to attend a meeting at Government expense", and "all requests for attendance in excess of three persons shall be accompanied by an explanatory memorandum - submitted well in advance of the meeting date". To facilitate consideration of such requests, kindly give for each individual full information regarding the purpose of his attendance and the objectives to be accomplished by him.

On or before December 10 (Form AD-61): Recommendations for attendance at no expense other than salary. Attendance under such authority may be limited, "whenever necessary, in the best interest of the Department, taking into account particularly total Department representation at any meeting".

On or before December 20 (without Form AD-61): Recommendations for attendance on employees' own time and at their own expense, "through arranging for annual leave or leave without pay and for continuing their work where necessary during their absence".

Sincerely yours,

/s/ P. V. Cardon
P. V. Cardon
Assistant Chief of Bureau

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Wheat Leaf Rust, C. O. Johnston) (Oct. 20)

October has been an exceedingly wet month in nearly all parts of Kansas. All of the principal rivers have been up and there have been disastrous floods in many of the river valleys in the eastern half of the State. During the past 48 hours there have been heavy downpours in many localities and several towns are flooded. More than 10 inches of rain fell in the vicinity of Salina, 65 miles southwest of Manhattan, and the Smoky Hill and Solomon Valleys are badly flooded. During the 2-day period more than 5 inches of rain have fallen here and the total rainfall for October now stands at 10 inches.

As a result of incessant rains, fields are soggy in all parts of the State and seeding of winter wheat is greatly delayed. This is especially true in the eastern half of the State where farmers have delayed sowing, owing to danger of hessian fly infestation. Sowings made during September are up and flourishing but far too many acres remain unplanted for this time of year.

The wet weather has seriously interfered with the sowing of the rust nursery at Manhattan. During the past week 1,200 rows of space-sown hybrids in F_2 and F_3 were put in but much of that will be lost through the washing that occurred in the past 48 hours. About 2,000 more rows remain to be planted. The prospects for this material are extremely unpromising, for it is doubtful if they can be sown before November 1. Sowings made that late seldom do well here. The writer does not recall ever having sown rust-nursery material that late.

Temperatures have been unusually mild in this area and no killing frost has occurred as yet. As a consequence of heavy rains and mild temperatures, many plants that had gone into semi-dormancy during August and September have resumed growth and some are blooming. The same conditions have favored the growth of a great deal of volunteer wheat in eastern Kansas and both leaf and stem rusts are abundant. There also is considerable infection from crown and stem rusts on volunteer oats. Other rusts also are abundant, rust on sorghums, hollyhock, and cocklebur being some of the more unusual ones.

OREGON

PENDLETON FIELD STATION, PENDLETON (Cereal Agronomy, J. F. Martin) (Oct. 15)

Average weight per bushel and yield per acre of winter wheat varieties grown in 4 series of 83d-acre plots at the Pendleton Field Station in 1941.

Sown Sept. 25, 1940

Variety	C. I. no.	Test weight (Lbs. per bu.)	Average yield (Bu. per acre)
Rex M-1	11689	60.8	47.0
Golden	10063	58.0	44.3
Jenkin	5177	59.0	42.7
Kharkof	1442	59.0	42.7
Alicel	11700	59.8	42.6
Rex	10065	60.1	41.2
Rio	10061	61.8	40.8
Athena	11693	57.6	39.8
Hybrid 128	4512	58.8	39.1
Oro	8220	60.8	38.0
Ridit	6703	62.0	37.9
Triplet	5408	61.3	36.4
Hymar	11605	58.5	34.6
Albit	8275	59.0	32.5
Federation 1/	4734	59.8	29.5

1/ Severely injured by low temperatures.

Average weight per bushel and yield per acre of spring wheat varieties grown in 4 series of 53d-acre plots at the Pendleton Field Station in 1941.

Sown March 11, 1941

Variety	C. I. no.	Test weight (Lbs. per bu.)	Average yield (Bu. per acre)
Onas	6221	58.0	41.4
Idaed	11706	60.7	39.6
Federation x Bunyip	11874	58.7	39.6
Federation x Bunyip selection 49	-----	57.6	39.0
White Federation	4981	60.0	37.2
Federation	4734	56.2	36.9
Baart	1697	62.0	34.7
Hard Federation 31	8255	62.0	31.6
Marquis	4158	61.0	31.3

Average weight per bushel and yield per acre of spring barley varieties grown in 4 series of 53d-acre plots at the Pendleton Field Station in 1941.

Sown March 11, 1941

Variety	C. I. no.	Test weight (Lbs. per bu.)	Average yield (Bu. per acre)
Flynn selection 37	5918	46.0	71.2
Arivat	6573	47.8	69.7
Trebi	936	50.2	68.8
Flynn selection 1	5911	46.3	66.4
Atlas	4118	46.8	64.0
Composite Cross selection	5449	43.0	51.2
Meloy selection 3	4656	46.1	45.8

Average weight per bushel and yield per acre of oat varieties grown in 4 series of 53d-acre plots at the Pendleton Field Station in 1941.

Sown March 11, 1941

Variety	C. I. no.	Test weight (Lbs. per bu.)	Average yield (Bu. per acre)
Markton x Scottish Chief	3022	35.1	84.3
Markton x Victory	2591	36.6	84.3
Markton x Ligowa	3025	35.2	78.0
Markton x Idamine	2570	34.7	72.7
Carleton	2378	32.0	72.5
Boone	3305	33.5	69.6
Markton x Iogold	3509	32.3	62.1
Marion	3247	31.2	59.5
Markton	2053	33.0	57.3
Markton x Iogold	3512	30.5	56.5

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 November 10, 1941 No. 18

Personnel (Oct. 26 - Nov. 10) and Field Station (Oct. 16 - 31)

PERSONNEL ITEM

Dr. K. S. Quisenberry arrived in Washington November 6 to confer with officials of the Department regarding cereal research, particularly wheat, and to attend the American Society of Agronomy meetings.

RECENT PUBLICATIONS

R. H. Bamberg. Fall-Sown Spring Wheat Susceptible to Dwarf Bunt. (Phytopath. Note) Phytopathology 31(10): 951-952. October 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases and the Montana Agricultural Experiment Station.)

H. H. Flor. Inheritance of Rust Reaction in a Cross Between the Flax Varieties Buda and J.W.S. Jour. Agr. Res. 63(7): 369-388, figs. 1-3. October 1, 1941. (G-1221) (Cooperative investigations by the North Dakota Agricultural Experiment Station and the Division of Cereal Crops and Diseases.)

H. H. McKinney and Claude H. Hills. Mosaic, Chlorosis and Necrosis in Virus-Infected Perennial Pepper Caused Directly by Products of a Deranged Metabolism. Science 94(2442): 372-373. October 17, 1941. (Studies conducted under Bankhead-Jones Project S.R.F. 2-17, U. S. Department of Agriculture, Bureaus of Plant Industry and Agricultural Chemistry and Engineering, cooperating.)

Ralph O. Snelling. Resistance of Plants to Insect Attack. Bot. Rev. 7(10): 543-586. October 1941. (Cooperative investigations of the Division of Cereal Crops and Diseases, the Illinois Agricultural Experiment Station, and the Illinois Natural History Survey.)

G. F. Sprague. Transmission Tests of Maize Mutants Induced by Ultra-Violet Radiation. Iowa Agr. Expt. Sta. Res. Bul. 292: [288]-407, figs. 1-6. August 1941. (Cooperative investigations between the Missouri Agricultural Experiment Station, the Iowa Agricultural Experiment Station, and the Division of Cereal Crops and Diseases.)

Roderick Sprague. Diseases of Grasses in North Dakota. N. Dak. Agr. Expt. Sta. Bul. 300: 88-93. June 1941. (Cooperative investigations between the Divisions of Cereal Crops and Diseases, Forage Crops and Diseases, the Dry Land Agriculture, Bureau of Plant Industry; Soil Conservation Service; and the North Dakota Agricultural Experiment Station.)

Arnold J. Ullstrup. Inheritance of Susceptibility to Infection by Helminthosporium maydis Race I in Maize. Jour. Agr. Res. 63(6): 331-334, fig. 1. September 15, 1941. (G-1219) (Cooperative investigations of the Division of Cereal Crops and Diseases and the Purdue University Agricultural Experiment Station.)

UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Plant Industry
Washington

Office of Chief of Bureau
B. P. I. Memo. No. 1241

November 1, 1941

To: Heads of Divisions

From: E. Stephens, Acting Business Manager

Subject: National Farm Machinery Repair Program

There has been inaugurated a nation-wide program for the repair of farm machinery, to be conducted by the U. S. D. A. Defense Boards at the request of the Secretary of Agriculture.

This program is intended to call the attention of farmers to the fact that agriculture must bear its share of the curtailment necessary in the consumption of steel for all civilian uses in order to meet defense needs, and to request farmers to repair their machinery during the slack season of the next few months, with a view to the continued use of machinery which might, under normal circumstances, be replaced with new machinery.

Although the Bureau does not have a direct part in the program, and the total amount of farm machinery operated by the Bureau may be relatively small, it is believed that a special effort should be made to repair our farm machinery within the next few months, to place it in the best possible operating condition. By so doing, we shall be cooperating in the general program, and avoiding possible delays and losses which may occur if repair and reconditioning of machinery is delayed.

/s/ E. Stephens

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

LOUISIANA

RICE EXPERIMENT STATION, CROWLEY (Rice Agronomy, J. Mitchell Jenkins) (Nov. 6)

Temperatures in September were about normal, with a maximum of 92°, minimum 65°, and an average mean of 80° F.

The total precipitation of 10.04 inches for the month was the highest for September since 1930, when the total was 10.84 inches. The heaviest September precipitation in 32 years was 13.67 inches in 1913. The 31-year average for September is 4.06 inches.

Average temperatures in October were above normal. The maximum was 90°, the minimum 50°, and the average mean 76° F. Only once in the past 31 years, 1919, when it was 77° F. has the average mean temperature for October been higher.

The total precipitation for October of 6.15 inches occurring on 13 days, was 5.99 inches more than the total for October 1940, and 2.86 inches more than the 31-year average for this month.

The harvesting of rice on the Station was completed on October 25. Wet weather has prevented threshing and interfered with general field work.

Many commercial fields of rice remain to be threshed because of bad weather. Those in low areas have been damaged by standing water in the shocked fields.

Farmers, in general, report low yields probably due to frequent rains, much cloudy weather, and high winds from tropical hurricanes that passed on the Gulf Coast when rices were heading and maturing. Prices however are high and will, in some measure, offset low yields.

According to the Rice Millers' Association report on rice acreage for 1941, Rexoro, Fortuna, and Nira occupied 73,006 acres in Louisiana, 13.85 percent of the State's total, and 107,356 acres in Texas, 32.10 percent of the State's total. Of the total acreage in the two States, Rexoro comprised 138,110 acres, 53,782 in Louisiana and 84,328 in Texas. Farmers are receiving as much as $1.50 per barrel more for Rexoro than for Blue Rose. Placing the difference at 50 cents per barrel will result in a premium to the rice farmers of Louisiana and Texas, this season, of about $700,000.00 on Rexoro alone.

Station visitors in September and October were Mr. Luis del Valle and family of Cardenas, Cuba, and Dr. H. A. Tobgy, College of Agriculture, Giza, Egypt.

ARKANSAS

RICE BRANCH STATION, STUTTGART (Rice and Oat Production and Improvement, C. R. Adair) (Nov. 7)

The 6.46 inches of rainfall during October was fine for fall-sown oats, but it has delayed the rice threshing.

Most of the winter oat nursery and field plots were sown the last of September and the first 2 weeks in October, although a few nursery plots were sown the last week in October. All the oats that were sown before the middle of October are up to a good stand and making a good growth. Those sown later are emerging unevenly and growing slowly because of the cool weather and rain.

An intensive program on the part of the Agricultural Defense Committee has resulted in a significant increase in the winter oat acreage sown this year in this territory.

Weather conditions during the fall and late summer were good for rice growth and development. The early varieties made good yields and the quality was fair. The late varieties made about average yields but the quality was much better than it was last year.

A large percentage of the late rice and part of the early rice on commercial fields remain to be threshed. Practically all the rice on the Rice Station has been threshed.

The average grain yields for the rice varieties grown in field plots are given in the following table.

Variety or parents	C. I. no.	Grain per acre[1]	
		Bu.	Lbs.
Caloro	1561-1	41.1	1851
Nakata Shinriki	6445	33.7	1517
IBR X F, C2920A41	-----	55.7	2507
Shoemed	3625	55.7	2508
Zenith	7787	54.9	2470
Colusa X BR, B2912A29	-----	47.8	2150
Early Prolific	5883	38.6	1737
IBR X F, AH-29-94	-----	57.6	2593
Stephens	-----	53.0	2386
Forest Rose	-----	46.4	2089
Lady Wright	6451	45.2	2033
E X F, C283A9	-----	37.4	1684
Acadia	1988	40.6	1826
Asahi	-----	36.2	1631
K X BR, AH-29-128	-----	48.7	2193
K X BR, B2912A47	-----	46.3	2084
K X BR, B2912A13	-----	46.4	2086
La. BR (2854-3)	-----	42.6	1915
Caloro X BR, AH-29-139	-----	40.9	1839
Old Style Blue Rose	-----	36.3	1632
Supreme Blue Rose	5793	34.3	1543
Arkansas Fortuna	-----	47.1	2118
Nira	2702	46.5	2094
R X D, B321A2	-----	35.2	1586

1/ Average of five replications.

OKLAHOMA

SOUTHERN GREAT PLAINS FIELD STATION, WOODWARD (Cereal Agronomy, V. C. Hubbard) (Nov. 4)

Rain was reported on 24 days during October. The total for the month was 9.66 inches, or 7.53 inches above the 27-year average. Rivers were up and out of their banks, bridges were washed out, and towns were flooded in many parts of western, central, and eastern Oklahoma. Precipitation for 1941 to date totals 40 inches, lacking but 0.68 inch of equaling the all-time record. Most of the rains for the year were general with little or no run-off.

The recent excessive rains slowed up small grain seeding and sorghum harvest and caused serious spoilage of forage in shocks in the field. Fortunately, practically all of the wheat acreage in Oklahoma was seeded and the few dashing rains did surprisingly little damage to fields of wheat. September 15 and October 1 seedings of small grains emerged promptly to good stands and to date have made vigorous growth. Later seedings emerged to good stands but as usual have made little growth.

Farm fields throughout western Oklahoma and the Panhandle of Oklahoma have a more uniform and abundant cover of wheat than in any year since the recent period of drought years. Row crops and sowed feed fields have put out an unusual amount of secondary growth. There is little likelihood of blowing in the so-called "Dust Bowl" area this year.

An indication of the amount of growth September 15 seedings have made is evidenced in the so-called clipping and yield experiment in which a number of 16-foot rows produced over 500 grams of green forage per row by October 27. Rye is making more vigorous fall growth than usual. Nursery seedings emerged to good stands and are making satisfactory growth. Shortly after emergence portion of one nursery was partly inundated with mud from other parts of the nursery and it had to be uncovered.

Light to moderate leaf-rust infection has been evident in wheat since October 5 and is severe enough on moderately rank and rank wheat to cause yellowing of all but two or three late-emerged leaves.

Temperatures have been mild and though they have reached 31° on two nights and 32° on a third, little or no killing is evident on sorghums, cotton, peanuts, tomatoes, etc., to date.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Nov. 6)

Field work with cereal crops was completed in October with the weighing of sorghum varieties and the taking of stand counts with the winter wheat plots.

Due to plenty of rain during summer and fall the winter grain is in excellent condition and grass is unusually green in fields, pastures, and on the wild prairie.

Considerable cloudy and wet weather occurred in October, but enough days were dry to permit the completion of threshing in this vicinity although some grain is still unthreshed in parts of the State. The total precipitation for October was 1.20 inches, mostly occurring as both rain and snow during the first week of the month. Misty, cloudy weather later did not add much to the precipitation. The total precipitation for 1941 to date is 30.61 inches, or about twice the normal for Dickinson.

UTAH

AGRICULTURAL EXPERIMENT STATION, LOGAN (Cereal Agronomy, R. W. Woodward) (Nov. 3)

Unsettled weather has been the rule during October as was the case in September. Precipitation has been above normal throughout the State. A total of 20.03 inches of moisture has fallen from November 1, 1940, to October 31, 1941, as compared to 16.32 inches for an average annual rainfall. The season is reported the wettest in Utah since 1909 with approximately 5 inches above the mean for the year ending October 31.

At the Experiment Farm, the annual precipitation is only about 4 inches above average. A rain on November 2 has left 0.47 inch of moisture in addition to 2.61 inches for October.

Winter wheat emerged to excellent stands and gives promise of going into the winter in good condition, having made a fair fall growth. All the harvests are completed except the small grains from Iron County which should arrive soon for threshing. Corn samples are dry and the results are being calculated.

Several killing frosts have occurred with temperatures as low as 20° F. Fall pastures still look good and some fall flowers have escaped injury to date. Several light snowstorms have occurred in the higher mountains. One rather heavy storm on October 5 laid nearly 6 inches of moist snow in the valley, doing excessive damage to trees and some crops.

There is still a large acreage of sugar beets yet to be harvested, and some fall seeding of wheat and barley.

ARIZONA

AGRICULTURAL EXPERIMENT STATION, TUCSON (Cereal Agronomy, A. T. Bartel) (Nov. 4)

The mean monthly temperature of 67.0° and precipitation of 0.76 inch for October were but slightly different than the long-time average.

The increase plots of hybrid hard red spring and durum wheats were seeded on October 23 at the Salt River Valley Experiment Station at Mesa. A flax nursery was also seeded at the same time.

The sorghum nursery at Tucson has been harvested. It is hoped that the threshing will be done next week.

C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 November 25, 1941 No. 19

Personnel (Nov. 11 - 25) and Field Station (Nov. 1 - 15)

PERSONNEL ITEMS

The following members of the field staff of the Division of Cereal Crops and Diseases, in addition to personnel in Washington, D. C., were in attendance at the meetings of the American Society of Agronomy which was held at Washington, D. C., November 12 to 14: C. Roy Adair, H. H. Laude, R. W. Jugenheimer, K. S. Quisenberry, G. F. Sprague, G. H. Stringfield, and C. A. Suneson.

The following papers were presented:

Growth and Maturity of Sorghums as Influenced by Temperature and Photoperiod, by J. H. Martin.

The Temperature Factor in Fertilization and Growth of the Barley Ovule, by Merritt N. Pope.

Exhibits shown were prepared by I. M. Atkins, E. G. Heyne, W. J. Sando, O. A. Vogel, and members of the Washington staff.

The following officers were elected for 1942:

President: Dr. R. Bradfield, Department of Agronomy, New York (Cornell University) Agricultural Experiment Station, Ithaca, N. Y.

Vice-President: Dr. F. D. Keim, Department of Agronomy, Agricultural Experiment Station, Lincoln, Nebr.

Chairman, Crops Section: Dr. K. S. Quisenberry, Agricultural Experiment Station, Lincoln, Nebr.

Chairman, Soils Section: Dr. H. J. Harper, Department of Agronomy, Agricultural Experiment Station, Stillwater, Okla.

Secretary-Treasurer: Dr. G. G. Pohlman, University of West Virginia, Morgantown, West Va.

Editor: Mr. J. D. Luckett, New York Agricultural Experiment Station, Geneva, N. Y.

Fellows-elect were Dr. E. B. Fred, Dr. G. G. Pohlman, Dr. D. W. Robertson, Dr. H. B. Sprague, and Mr. E. L. Worthen.

Dr. C. Roy Adair was authorized to spend about 10 days in Washington attending the meetings of the American Society of Agronomy and conferring with officials of the Department regarding rice breeding research. He stopped in Washington en route while on a vacation trip.

Mr. A. C. Dillman returned to Washington on November 25 from Minneapolis, Minn., where he attended the meetings of the Flax Institute of the United States held on November 21 and 22.

Dr. R. W. Jugenheimer arrived in Washington on November 10 and will remain about a month consulting members of the corn investigations project and preparing a manuscript for publication.

Dr. H. H. Laude spent about a week in Washington attending the meetings of the American Society of Agronomy and conferring with officials of the Division and other Federal agencies engaged in the cooperative crop-weather project.

Dr. M. A. McCall will leave Washington about November 29 to attend the meetings of the International Crop Improvement Association to be held in Chicago, Ill., December 1 to 4.

Dr. L. F. Randolph arrived in Washington November 24 to confer with members of the Division regarding corn cytology.

Dr. H. A. Rodenhiser was in Minnesota and Wisconsin about 10 days beginning November 12 conferring with agricultural experiment station officials regarding rust research.

Mr. C. A. Suneson arrived in Washington on November 12 to confer with personnel of the Division regarding cooperative cereal research. He was authorized to make a stop at the Indiana and Nebraska Agricultural Experiment Stations on his return trip.

RECENT PUBLICATIONS

A. A. Bryan and J. E. Sass. Hereditary Characters in Maize; "Knotted Leaf." Jour. Hered. 32(10): [342]-346, figs. 1-4. October 1941. (Contribution from the Iowa Agricultural Experiment Station and the Division of Cereal Crops and Diseases, cooperating.)

F. A. Coffman. Results from the Cooperative Coordinated Oat Breeding Nurseries for 1939, and the Uniform Winter-Hardiness Nurseries for 1940-41. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 116 pp. October 24, 1941.

L. F. Randolph. Genetic Studies of the B Chromosomes in Maize. Genet. 26 (6): 608-631, fig. 1. November 1941. (Cooperative investigations between the Division of Cereal Crops and Diseases and the New York State College of Agriculture.)

November 25, 1941

MEMORANDUM TO FIELD STAFF

The Department has been issued two Preference Rating Orders for use in securing materials, supplies, and repairs needed for the continuance of its necessary work without undue delay or interruption. For your information and guidance these two orders are interpreted as follows:

Preference Rating Order No. P-43--This order issued by the Office of Production Management extends Preference Rating A-2 to deliveries of materials (any commodity, equipment, accessories, parts, assemblies or products of any kind) which will be used for scientific research or which will enter, either directly or indirectly, at any stage, into the production of such material. This rating is for use up to and including February 28, 1942. The rating is applicable only to orders covering supplies and equipment needed for strictly scientific research work and is for application only in cases where the material ordered cannot be secured when required without such rating. In other words, the rating will not be issued unless requested by the vendor after submission of order. It is not to be used in an attempt to secure deliveries on construction, building materials, automotive equipment or materials in a similar category. In the event a preference rating is required under this order, request for same must be submitted through this office and should include the name and address of the vendor, purchase order number and date, description of the material covered, and a statement indicating the manner in which such material is used in scientific research work. If the issuance of the preference rating is deemed justifiable, the Division of Purchase, Sales, and Traffic will forward copies direct to the vendor.

Preference Rating Order No. P-22, amended--This order enables Government agencies, among others, to apply an "A-10" rating to the acquisition of materials for the repair or maintenance of property or equipment and for operating supplies, other than for scientific research work, within the following categories:

1. Repairs. To repair any and all types of Department-owned property and equipment for the purpose of restoring it to normal operating conditions when such property or equipment has been rendered unsafe or unfit for service by wear, tear, damage, or similar causes. It cannot be extended to make additions to existing property or equipment of material of better kind, quality, or design. Property includes in general, buildings, roads, etc. Equipment includes all operating equipment such as automobiles, and other heavy equipment and machinery, office equipment, and other labor-saving devices.

2. Maintenance. The upkeep of all Department-owned property and equipment similar to that described in Paragraph 1 in sound working condition.

3. Operating Supplies. Means any administrative or mechanical supplies of a consumable nature which are required in normal business operations of the Department, provided that no material shall be physically incorporated, in whole or in part, into any finished products if the installation of such material is for the purpose of constructing new equipment, etc., or improving or enlarging present installation. These supplies include such items as paper, typewriter ribbons, and other items of office supplies, as well as repair and maintenance supplies for automotive and other equipment, and machinery, "small perishable tools" included in supplies is limited to such items as tape measures, hand screwdrivers, hammers, small wrenches, and similar inexpensive tools required in the repair and maintenance of equipment. Such items as typewriters, adding machines, power-driven saws, drills, etc., are included in the classification of operating supplies under this Order if they are actual replacements of equipment on hand which cannot be economically repaired. Automobiles, tractors, road machinery, and other heavy equipment is not classified as operating equipment.

This order may be issued by any fieldman having authority to sign purchase orders. It should not be issued unless required by the vendor, contractor, etc., in which case the purchase order should bear the following endrosement signed by the fieldman issuing the order:

"Material for Maintenance, Repair, or Operating Supplies--Rating A-10 under Preference Rating Order P-22, amended, with the terms of which I am familiar."

All copies of the purchase order should bear this endorsement and must be filed separately from other purchase orders and retained for the period of two years from the dates thereof for inspection, if requested by authorized representatives of the Office of Production Management. Request for preference rating must be submitted through this office in the same manner prescribed for Order P-43, for any supplies, material, or equipment required which does not come under the above classifications.

The Preference Ratings, P-43 and P-22, shall not be applied (1) unless the materials or services cannot be secured when required without such rating; (2) to obtain deliveries greater in quantity, or on dates earlier than required; (3) to obtain scarce material the use of which could be eliminated by substitution of less scarce material or by simplification of design.

Summed up Preference Rating Order No. P-43 which carries Preference Rating "A-2" and applies to scientific research work only, will be issued through the Department here, and Preference Rating Order No. P-22, amended, for repairs maintenance and supplies other than for scientific research work may be issued by any responsible fieldman, providing services or supplies come within the categories listed, otherwise request for rating order will have to come through this office.

H. S. Smith
Junior Administrative Assistant

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

TEXAS

TEXAS SUBSTATION NO. 6, DENTON (Wheat Improvement, I. M. Atkins) (Nov. 1)

Weather conditions during October were for the most part unfavorable for farm operations in this region. The total precipitation amounted to 7.27 inches, which is 3.95 inches above normal and brings the accumulated departure from normal since January 1 to 8.85 inches. Rain was recorded on 11 days. Mean temperature for the month was 70.2° F., which is 3.2° above normal and a record high for October. The maximum temperature was 90°, and the minimum 38°. Dews were recorded on 19 days of the month.

In spite of the frequent rains, nearly all experimental grain and considerable field grain were sown under favorable conditions during the month. All fall-sown barley and oats were sown, and all wheat except the bunt nursery and a few miscellaneous plat seedings were made. All seedings emerged in record time and are growing rapidly.

The cooperative nursery at the U. S. Cotton Field Station, Greenville, Tex., was seeded on October 14 under favorable conditions. The cooperative nursery at the Iowa Park Substation has not been sown because of excessive rains, totalling more than 14 inches in October.

Volunteer grain plants are very large and some volunteer oat plants are heading. Crown rust on volunteer oats and leaf rust on wheat have been observed, but no stem rust has been found. Slides exposed on October 10 and 16 caught a few rust spores on both dates.

KANSAS

AGRICULTURAL EXPERIMENT STATION, MANHATTAN (Cereal Rusts, C. O. Johnston) (Nov. 10)

October 1941 was the wettest October ever recorded by the local weather station. There was a total of 11.5 inches of moisture, including 2.5 inches of wet snow on October 31.

The total rainfall for the year now is 31.27 inches, only 1.13 inches above normal, but more than a third of this precipitation fell during October.

The abnormally wet fall weather is general throughout the eastern half of Kansas and in adjoining States. Some of the rivers in Kansas have flooded lowland four or five times since May, and losses in crops and property have been enormous. Crop losses have not been limited to those incident to washing or covering of the crops by water but also in delayed harvest and spoilage. Owing to waterlogged soil, it has been impossible to get into the fields and much of the corn and sorghum is lodged, sprouting, or spoiling in the shock. Large acreages prepared for winter wheat remain unseeded in all parts of the State but the southeastern section is most severely affected where in some localities less than 1 percent of the wheat has been sown. It has been impossible to make nursery and field plot sowings at the experimental fields in that section.

A part of the nursery and field plot seedings has been completed at Manhattan. All of that sown was simply "mudded in" a little at a time and some of it already has been washed out. As soon as it gets dry enough to get into the field a few hundred more rows will be sown provided the ground is not frozen by that time.

The long period of frequent rains accompanied by mild temperatures favored an unusually heavy development of rusts on volunteer or early-sown cereals. The surprising feature of the situation is the heavy infection of leaf rust on wheat in the western third of the State where rust seldom is seen in the fall. Many farmers are complaining that the leaves of volunteer and early-sown wheat are being dried up by leaf rust, thus reducing the amount and value of winter pasture. A company at Lawrence engaged in the manufacture of powdered cereal leaves as a source of certain vitamins also has reported losses from rust. They had been growing considerable acreages of oats and clipping the leaves at intervals. Their operations were suddenly halted by extremely heavy infections of crown rust that appeared about the middle of October.

The frequent cloudy weather has delayed the development of leaf rust in the greenhouse but good infections have been obtained. Physiologic race determinations on leaf rust of wheat are under way. Collections of leaf rust of wheat from about 25 localities already are in culture. The testing of hybrid populations of wheat and oats with leaf and crown rusts has been started.

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Nov. 17)

The change from foggy damp weather, to days of sunshine and drying weather has made it possible for farmers to enter their fields and take care of feed crops, grain sorghums, and corn. Heavy damage to all crops occurred in the lowlands of central and eastern Kansas during October. In the western part of the State crop conditions as a whole have rarely been better. There is an ample supply of stored moisture in the soil. Volunteer and sown wheat are abundant and the fields are carrying large numbers of livestock. There has been a considerable increase in the use of electric fences. September sown wheat tends to have too rank a growth, but if heavily grazed will probably show no adverse effect later. In October seedings plant development is about ideal.

Grain sorghums are now being harvested with combines or threshed from the shock. Corn picking is under way. Labor is scarce. The experimental sorghums have been threshed, and while the yields have not beendetermined, the range will be from 20 to 40 or more bushels per acre. A forty-acre field of Early Kalo just threshed on the station yielded approximately 47 bushels to the acre. The variety has done well in this locality. Norkan sorgo, which was released from the Hays Station this spring, has been favorably received by the farmers.

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C E R E A L C O U R I E R

Official Messenger of the Division of Cereal Crops and Diseases
Bureau of Plant Industry, U. S. Department of Agriculture
(NOT FOR PUBLICATION)

Vol. 33 December 10, 1941 No. 20

Personnel (Nov. 26 - Dec. 10) and Field Station (Nov. 16 - 30)

PERSONNEL ITEMS

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RECENT PUBLICATIONS

John H. Bigger, Ralph O. Snelling, Ralph A. Blanchard. Resistance of Corn Strains to the Southern Corn Rootworm, Diabrotica duodecimpunctata F. Jour. Econ. Ent. 34: 605-613. October 1941. (Cooperative investigations of the Illinois Natural History Survey, Division of Cereal Crops and Diseases, Bureau of Plant Industry, Division of Cereal and Forage Insect Investigations, Bureau of Entomology and Plant Quarantine, and the Illinois Agricultural Experiment Station.)

K. S. Quisenberry. Comparison of Winter Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Hard Winter Wheat Region in 1941. U. S. Dept. Agr., Bur. Plant Indus., Div. Cereal Crops and Dis. [Unnumb. Pub.] 57 pp. November 17, 1941. [Mimeographed.]

H. A. Rodenhiser and K. S. Quisenberry. Summary of the Great Plains Uniform Winter Wheat Bunt Nursery, 1941. U. S. Dept. Agr., Bur. Plant Indus., Div. C. C. & D. [Unnumb. Pub.] 2 pp. [1941.] [Mimeographed.]

FIELD STATION CONDITION AND PROGRESS

(All experiments except those conducted at the Arlington Experiment Farm, Arlington, Va., are in cooperation with State agricultural experiment stations or other agencies.)

KANSAS

FORT HAYS EXPERIMENT STATION, HAYS (Cereal Agronomy, A. F. Swanson) (Dec. 1)

Moderate weather has prevailed in recent weeks enabling farmers to care for their feed crops and thresh their grain sorghums. Both grain and forage sorghums developed well in the western part of the State. Wheat has made a normal growth and is going to go into winter in excellent shape with an abundance of stored moisture. The penetration is anywhere from 3 to 5 or more feet over most of the area.

There has been a heavy movement of sheep and cattle from the ranges and mountain regions into the western Kansas wheat fields, and the expectation is that cheap and satisfactory gains will be made. It is quite well recognized that abundant wheat pasture supplemented with some dry forage feeds is one of the cheapest methods of producing beef or mutton.

Palatibility studies with both grain and sorghum fodder and stover is under way. This year the work has been supplemented by making sugar determinations with a refractometer. Good correlation between palatability and sugar determinations have been obtained. The grain yields for all sorghums have been much higher this year than in recent years when the crop was grown under droughty conditions. As a consequence, the grain sorghum forage is definitely low in palatability. For example, hegari, which under low grain production was among the highest in palatibility, is this year at the bottom of the list, apparently because it produced a satisfactory grain crop. Tests showed the stalks of hegari to be very low in sugar content.

Albert Weaver, for many years known as Kansas Wheat King, passed away last week. Mr. Weaver was a firm believer in thorough seedbed preparation. He developed methods and machinery to meet his needs and always succeeded in raising a fair crop even under the most adverse situations. Mr. Weaver farmed extensively in northwest Kansas and contributed much to the knowledge of growing wheat.

NORTH DAKOTA

DICKINSON SUBSTATION, DICKINSON (Cereal Agronomy, R. W. Smith) (Dec. 2)

The month of November was comparatively dry and mild with a precipitation of only 0.32 inch or about 0.20 inch below normal. The mean temperature was 32°, which is more than 3° above normal. There was a little snow on the ground during part of the month but during the last week the ground was bare and temperatures reached the fifties. The maximum for the month was 63° recorded on the 12th and the minimum -6° on the 23d.

The total precipitation to November 30 for the year 1941 is 30.93 inches, which is more than twice the normal precipitation for the entire year. The subsoil is more nearly saturated with moisture than for many years, and there has been but little drying weather this fall to dry the surface soil. The winter wheat and rye are in excellent condition to begin the winter.

Progress is being made on the annual report.

NOTICE

This issue of the Cereal Courier is the last for the calendar year 1941. The next issue will be dated January 10, 1942.